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The Carabidae (Coleoptera) of New Zealand

PART III[1]—A REVISION OF THE TRIBE *BROSCINI*

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INTRODUCTION.

THE tribe Broscini is a natural group of the family Carabidae, first recognised by Hope (1839) as the Broschidae, after *Broscus* Panzer 1813, the first and best-known European genus. The group was defined by Lacordaire (1854), who gave it the name Cnemacanthides, which was later adopted by Broun.

Seven genera and 114 species of Broscini have been described from New Zealand. I have been able to examine the types of all but 16 of these species. The synonymy established here, together with the addition of 10 new species, brings the total number of species recognised in this revision to 68, distributed among five genera.

In a recent work, Jeannel[2] maintains that many of the tribes of Carabidae, including the Broscini, should be raised to family rank in order to indicate the great age of these groups as shown by their geographical distribution. Jeannel states that the facts of biogeography

[1] Part I—Pterostichini. *Trans. Roy. Soc. N.Z.*, 69 (4), 1940: 473–508, 107 figs.
Part II—Lebiini and Pentagonicini. *Proc. R. Ent. Soc. Lond.*, 10 (10), 1941: 185–196, 11 figs.

[2] *Faune de France*, 39 I, 1941: 1.

must decide the systematic value of the facts provided by morphology, e.g. a group whose present distribution shows that it was differentiated in the Jurassic must be treated, on this fact alone, as a systematic category of the first rank.

In spite of this statement, it is clear that age alone cannot be used to determine systematic rank. To take an extreme case, the brachiopod genera *Lingula* and *Disinisca* have existed without divergence since the Devonian. If age were a criterion, each of these genera should be elevated at least to the rank of an order because they were distinguishable more than 300 million years ago. In establishing systematic categories, it is relative and not absolute age that is significant. Genus, tribe and family should indicate monophyletic lines of evolution, each arising from next, in that order. The elevation of 30 or more tribes of Carabidae to family rank does not contribute to either of the two functions of classification, i.e. (1) the illustration of phylogenetic relation and (2) the practical means whereby entomologists can communicate information to others. It follows that no valid case is established for the change, and I therefore continue to treat the groups in question as tribes of the family Carabidae.

Information on the habits of the Broscini is practically nonexistent, and no larvae of the New Zealand species have yet been described or figured. The larvae of only two species out of the whole tribe are so far known.

A complete classification of the Broscini of the world has yet to be attempted. It promises to be a difficult task, as the characters of the Broscini are markedly inconsistent. Jeannel (1941) has suggested a division into three subtribes (Barypina, Creobina, Broscina), based on the shape of the base of the aedeagus, but the Broscina are intermediate in this respect. A clear division seems unlikely and there are apparently no correlated characters.

The main purpose of the present revision is to make the New Zealand Broscini identifiable, but it is hoped that it may also serve as a contribution to a revision of the whole tribe.

The Geographical Distribution and Origin of the Broscini.

The tribe Broscini is moderate in size, comprising 27 genera and about 250 species. These are distributed as follows:—

	No. of Genera.	No. of Species.
Australia	11	116
New Zealand	5	68
South America (mainly Chile)	4	34
Palaearctic Region (One genus and two species extend into North America)	7	30
Nearctic Region	2	4

The New Zealand genera and species are all endemic, as is the case with almost all other Carabidae of the fauna.

The above table shows that the Broscini are distributed on the remnants of the palaeantarctic continent of the Cretaceous (which included Australia, New Zealand, Antarctica, and the southern part of South America), with a less numerous section in the northern hemisphere.

Conclusions based on the modern distribution of a single systematic unit are at best only indications and cannot be conclusively proved,

for it is always possible to nullify the argument by postulating the former existence and subsequent destruction of the group in the areas where it no longer exists. Nevertheless, the evidence for the existence of a fauna characteristic of a Cretaceous palaeantarctic continent has a sound statistical basis. The relations of the faunas of Australia, New Zealand, and southern South America are so close in so many respects that the matter is removed from the realm of chance. It follows that any group, such as the Broscini, which shares the palaeantarctic distribution is very probably of Cretaceous origin.

The absence of the Broscini from Brazil, Central America, the Ethiopian and Oriental Regions is almost certainly real, as such large insects are not likely to have escaped the notice of collectors. The great majority of the species occur in north and south latitudes higher than 30° and only two or three species are found within the tropics. The fact that the Broscini are not adapted to tropical conditions is further shown by the fact that those species that penetrate farthest towards the equator do so on mountains and islands.

The much greater diversity of the Broscini in the southern hemisphere suggests that the group arose on the palaeantarctic continent rather than in the northern hemisphere. The tribe Broscini is probably, therefore, a group of Cretaceous palaeantarctic origin, fitted to temperate and subarctic conditions, which in some way has crossed the tropics to colonise the holarctic region. There is general agreement that the palaeantarctic continent was separated from Asia from the end of the Jurassic until the late Tertiary, so that the Broscini could not have reached Asia directly from Australia sufficiently early to allow for the considerable diversification of the holarctic genera and species. On the other hand, the connection of Palaeantarctica with South America remained until the early Tertiary. It is therefore much more probable that the Broscini reached the northern hemisphere by way of South America. The formation of the Andes began at the end of the Cretaceous and it seems likely that they formed the bridge by which the Broscini were able to cross the tropics (*Cnemacanthus coerulescens* Chaud. still occurs in Bolivia).

The presence of endemic species of *Broscus* in the Canary Islands and Madeira suggests that the Broscini may have reached the Palaearctic region by a land link from the northern part of South America to the Mediterranean region across the narrow, newly opened Atlantic of the Eocene. The possibility of such a link, which may never have been continuous at one time, is supported by a good deal of geological and biological evidence, which has been given by R. F. Scharff[3] (1911), H. von Jhering[4] (1927), J. W. Gregory[5] (1929), and R. Jeannel[6] (1935, 1942). An alternative explanation is that on account of the movement of the land masses relative to the earth's axis,[7, 8, 9] the

[3] Scharff, R. F. *Distribution and Origin of Life in America*, 1911.
[4] Jhering, H. von. *Die Geschichte des Atlantischen Ozeans*, 1927.
[5] Gregory, J. W. The Geological History of the Atlantic Ocean. *Quart. J. Geol. Soc.*, 85, 1929.
[6] Jeannel, R. L'Archatlantis et le peuplement de la region meditérraneanne. *Arch. Mus. nat. Hist. nat.*, (6), 12, 1935, 416–425.
[7] Jeannel, R. *La Genèse des Faunes Terrestres*, 1942, 368–370.
[8] Wegener, A. *The Origin of Continents and Oceans*, London, 1924.
[9] Du Toit, A. L. *Our Wandering Continents*, 1937.

continuous land connection from the West Indies to the Mediterranean, through Iceland and Greenland, was at about latitude 30°N. in Eocene times, and consequently had a mediterranean climate. An exchange of temperate faunas might have occurred by this route, the link being subsequently broken by the further relative movement of the pole.

Characters of the Broscini of New Zealand.

Size large (10–40 mm. in length); colour dark brown or black, sometimes slightly aeneous; anterior coxal cavities with a single perforation; the mesepimera not attaining the border of the middle coxal cavities; parameres of the male genitalia prolonged into long styles at their apices, the right-hand style bearing a fringe of long setae; mandibles usually with a seta in anterior part of the scrobe (the outer hollow); labrum with angles rounded, with 6 setae in front margin and a row of small setae arising just beneath antero-lateral margins, the base of the aedeagus closed on the dorsal side so that the orifice is circular; the prothorax is connected to the mesothorax by a peduncle formed by a mesothoracic prolongation which bears the scutellum; the border of the base of the elytra is not complete; the pronotum never with a setiferous puncture at the posterior angle; the anterior tarsi are not widened in the male, and are without special clothing of hairs beneath; the emargination of the mentum always with a median tooth; the elytra are soldered together along the suture and hind wings are vestigial; the exact disposition and number of setae shows much variation, and in the same individual is often asymmetrical; there is a tendency towards the multiplication of setae arising from a single puncture, so that all except the species of *Diglymma* and *Oregus* have more than one seta arising from the single supraorbital puncture on each side.

Male Genitalia.

In the male genitalia, the right paramere is always elongate and bears a fringe of setae extending to the apex on the lower margin. The left paramere is broad and strongly chitinised in the basal half and weakly chitinised or membranous in the apical half. In species, such as *Mecodema impressum* Castelnau, where the left paramere is fully chitinised, it possesses a continuous fringe of long setae. Species in which the apex of the left paramere is less strongly chitinised have the fringe of setae broken into two groups or reduced to an apical group or even to a single seta.

The shape of the apex of the aedeagus provides good specific characters in *Mecodema* and shows clear evolutionary series, as in *M. simplex, validum, o'connori, hector* and *spinifer*. Figures 42–81a illustrate the specific characters of the aedeagus.

List of New Zealand Broscini.

(N.I. = North Island, S.I. = South Island)

	Fig. No.
Diglymma	
1. *D. castigatum* Broun (The Snares)	
2. *D. obtusum Broun* (S.I.)	29
3. *D. marginale* Broun (S.I.)	1
4. *D. clivinoides* Castelnau (S.I.)	26
Oregus	
5. *O. aereus* White (S.I.)	22, 23, 24
6. *O. inaequalis* Castelnau (S.I.)	21, 25
Mecodema	
7. *M. lewisi* Broun (S.I.)	42, 82
8. *M. costipenne* Broun (S.I.)	83
9. *M. chiltoni* Broun (S.I.)	84
10. *M. punctellum* Broun (Stephen's I.)	2

Mecodema—Cont.	Fig. No.
11. *M. costellum* Broun (S.I.)	44, 85
12. *M. gordonense* Broun (S.I.)	45, 86
13. *M. howitti* Castelnau (S.I.)	43, 87
14. *M. bullatum* Lewis (S.I.)	46
15. *M. litoreum* Broun (S.I.)	5, 47
16. *M. rectolineatum* Castelnau (S.I.)	48, 88
17. *M. sculpturatum* Blanchard (S.I.)	49, 89
var. *puncticolle* Broun (S.I.)	90
18. *M. ducale* Sharp (S.I.)	50, 91
19. *M. crenaticolle* Redtenbacher (N.I.)	51, 92
20. *M. crenicolle* Castelnau (N.I., S.I.)	52, 93
21. *M. laterale* Broun (S.I.)	6, 53
22. *M. allani* Fairburn (S.I.)	54, 94
23. *M. quoinense* Broun (N.I.)	33, 95
24. *M. simplex* Castelnau (N.I.)	55, 96
25. *M. validum* Broun (N.I.)	7, 56, 97
26. *M. o'connori* Broun (N.I.)	36, 57, 98
27. *M. hector* sp.n. (S.I.)	37, 58, 99
28. *M. spinifer* Broun (N.I.)	59, 100
29. *M. lucidum* Castelnau (S.I.)	34, 60, 101
30. *M. politanum* Broun (S.I.)	102
31. *M. impressum* Castelnau (S.I.)	8, 61, 103
32. *M. huttense* Broun (S.I.)	35, 62
33. *M. dux* sp.n. (N.I.)	3, 63
34. *M. gourlayi* sp.n.	10, 104
35. *M. laeviceps* Broun (S.I.)	9, 105
36. *M. fulgidum* Broun (S.I.)	39, 64, 106
37. *M. rex* sp.n. (S.I.)	66, 107
38. *M. constrictum* Broun (S.I.)	38, 65
39. *M. hudsoni* Broun (The Snares)	41
40. *M. alternans* Castelnau (S.I. & Chatham I.)	40, 67, 108
41. *M. trailli* Broun (S.I. & Stewart I.)	109
42. *M. proximus* sp.n. (S.I.)	4, 71
43. *M. metallicum* Sharp (S.I.)	17, 75
44. *M. angustulum* Sharp (S.I.)	110
45. *M. strictum* sp.n. (S.I.)	16, 72
46. *M. rugiceps* Sharp (S.I.)	19, 68, 111
47. *M. nitidum* Broun (S.I.)	11, 69
48. *M. punctatum* Castelnau (S.I.)	18, 70
49. *M. longicolle* Broun (N.I.)	13, 74
50. *M. persculptum* Broun (S.I.)	12, 73
51. *M. florae* sp.n. (N.I., S.I.)	20, 76
52. *M. striatum* Broun (S.I.)	112
53. *M. femorale* Broun (S.I.)	113
54. *M. infimate* Lewis (S.I. & Stewart I.)	77, 114
55. *M. minax* sp.n. (S.I.)	115
56. *M. morio* Castelnau (S.I.)	28, 78, 116
57. *M. elongatum* Castelnau (S.I.)	27, 79, 117
58. *M. occiputale* Broun (N.I.)	80, 118
59. *M. atrox* sp.n. (N.I.)	119
60. *M. pluto* sp.n. (N.I.)	14
61. *M. curvidens* Broun (N.I.)	120
62. *M. oregoide* Broun (S.I.)	121
63. *M. sulcatum* Sharp (S.I.)	122
64. *M. oblongum* Broun (Stephen's I. & The Brothers, Cook Strait)	123
Metaglymma	
65. *M. tibiale* Castelnau (S.I.)	15, 30, 81a
66. *M. monilifer* Bates (S.I.)	32, 124
67. *M. aberrans* Putzeys (S.I.)	31
Brullea	
68. *B. antarctica* Castelnau (S.I., N.I.)	81, 125

GENERA AND SPECIES EXCLUDED FROM THE NEW ZEALAND LIST.

Acallistus simplex Sharp 1886 is identical with the Australian species *Promecoderus tasmanicus* Cast., and as this species has never appeared again in New Zealand, it seems certain that the original record was an error. It is significant that a detailed locality was not given in the original description.

Promecoderus Dejean 1829 = *Acallistus* Sharp 1886 **(new synonymy).**

Promecoderus tasmanicus Cast. = *Acallistus simplex* Sharp **(new synonymy).**

By the kind assistance of Dr. F. Capra, of the Natural History Museum, Genoa, I am able to recognise the five species described by Castelnau in the genus *Maoria*. These five species in reality belong to four different genera, and as a genotype has not been fixed for *Maoria*, its synonymy remains uncertain. In order to prevent changes in generic names already in use and to retain the synonymy adopted by

Putzeys (*Ent. Zeit.*, Stettin, XXIX, 1868, p. 318), I select *Metaglymma* (= *Maoria*) *tibiale* (Cast.) as the type of *Maoria*. This stabilises *Maoria* as a synonym of *Metaglymma* Bates.

Maoria dyschirioides Cast. proves to be a species of the Australian genus *Eurylychnus*. The type locality of this species is Crooked River. This is in Victoria, Australia, and the reference to New Zealand by Castelnau was therefore an error.

Distribution of the Broscini within New Zealand.

The amount of material available is insufficient to permit any detailed plotting of the distribution of individual species, but like the Pterostichini, about 70% of the known species are found in the South Island. Of the 68 known species, 12 occur in the North Island, 51 in the South Island, 3 are found in both islands, and 2 are reported only from the Snares, two small islands which lie 60 miles to the south-west of Stewart Island.

Acknowledgments.

I wish to record my thanks to Professor O. de Beaux for the loan of cotypes of *Mecodema punctatum* (Cast.) and *Metaglymma tibiale* (Cast.) from the collections of the Natural History Museum, Genoa, and to Dr. F. Capra, of the same institution, who by his detailed replies to my inquiries, and by means of drawings and photographs, has made possible the identification of the important Castelnau types in the Genoa Museum.

My thanks are also due to Professor G. D. Hale Carpenter for the loan of material from the Hope Department, Oxford; to Mr. E. S. Gourlay for the loan of material collected by himself; and to Dr. J. T. Salmon for the opportunity to examine a large collection from the Dominion Museum, Wellington.

The figures of whole insects have been made by Miss O. F. Tassart and Mr. Arthur Smith.

Abbreviations.

In the keys and descriptions the following abbreviations are used:

Length—the total length of the insect from the apex of the mandibles to the posterior end of the elytra.

Pronotum ratio—ratio of basal width of pronotum/greatest width/apex width/middle length.

M.—*Manual of New Zealand Coleoptera.*
A.—*Annals and Magazine of Natural History.*
B.—*Bulletin of the New Zealand Institute.*
N.—*New Zealand Beetles and their Larvae,* 1934 (Hudson).

Location of Types.

Unless otherwise stated, the types are in the British Museum (Natural History). An asterisk placed after the name of the species indicates that I have examined the type material.

Key to the New Zealand Genera.

1 **The anterior tibiae not prolonged to a point externally at the apex; usually with a seta in the scrobe of the mandible; the supraorbital puncture on each side bearing only one seta (Fig. 1)** **2**

		The anterior tibiae prolonged into a point externally at the apex; without a seta in the scrobe of the mandible; the supraorbital puncture on each side bearing two or more setae (Figs. 2, 15)	3
2	(1)	Terminal segments of the palpi slender, widest in the middle, tapering to the apex; head with a single supraorbital puncture on each side (Fig. 1)	*Diglymma*
		Terminal segments of the palpi triangular, expanded and truncate at their apices (Fig. 23), head with two or more supraorbital punctures on each side (Figs. 21, 22) ..	*Oregus*
3	(1)	Penultimate abdominal sternite with 2–6 setiferous punctures; antennae long, reaching beyond the middle of the pronotum; 3½–5 basal segments of the antennae glabrous, remainder pubescent, at least at the sides (Figs. 2–20)	*Mecodema*
		Penultimate abdominal sternite with a large and indefinite number (6–20) of setiferous punctures; antennae short, not reaching to the middle of the pronotum, glabrous except for very small antero-apical patches of pubescence on segments 6–11 (Fig. 15)	4
4	(3)	Apical spur of the posterior tibiae not reaching beyond the middle of the 2nd segment of the tarsus; posterior tibiae slender and straight (Fig. 15)	*Metaglymma*
		Apical spur of the posterior tibiae reaching to the middle of the 3rd segment of the tarsus; posterior tibiae strongly curved and greatly expanded at the apex (Fig. 125) ..	*Brullea*

GENUS **Diglymma** Sharp

D. Sharp, *Trans. R. Dublin Soc.*, (2) III, 1886, p. 360; Broun, M., v., 1893, p. 980. *Snofru* Broun 1908, A., (8), II, p. 340 (new synonymy).

Generic Characters.

Head: a seta arises from the anterior end of the scrobe of the mandible; mandibles sharply pointed and strongly curved in the apical third; vertex punctured; palpi with terminal segments subcylindrical; mentum with a blunt, sometimes bifid, median tooth with two setae below it, lateral lobes truncate; submentum with two setiferous punctures on each side; penultimate segments of the labial palpi with two setae; ligula chitinous with a median carina and two apical setae; paraglossae membranous, extending beyond the apex of the ligula; antennae with 3½ basal segments glabrous, the remainder covered with fairly long pale pubescence. *Pronotum:* lateral margins narrow, not crenulate, with only 2 or 3 setiferous punctures; median line deeply impressed, basal foveae well marked. *Elytra:* with a raised basal margin extending inwards as far as the 5th or 4th stria; striae uniformly impressed, faintly and regularly punctured; the 3rd interval with one setiferous puncture at the base; interval 7 without setiferous punctures. Abdominal sternites 1 and 2 without setiferous punctures, sternites 3–5 with one and sternite 6 with two setiferous punctures on each side. Metacoxae with both an anterior and a posterior setiferous puncture. Tibiae almost straight, without outer apical prolongations. Anterior tarsi in the male with the two basal segments expanded on the inner side and bearing a patch of long hairs beneath.

Genotype: *Diglymma clivinoides* (Cast.).

KEY TO THE SPECIES OF *Diglymma*.

1		Shoulders of the elytra distinct (Fig. 1); elytral striae distinctly impressed; length over 10 mm. (N. and S. Islands)	2

	Shoulders of the elytra entirely absent; elytral striae very faintly impressed; length less than 9 mm. (The Snares)	1. *castigatum* Broun
2 (1)	Pronotum with sides sinuate in front of the posterior angles which are distinct (Figs. 1, 26); ratio greatest width of pronotum/length of pronotum about 1.0	3
	Pronotum with sides straight or very slightly sinuate in front of the posterior angles, which are broadly rounded (Fig. 29); ratio greatest width of pronotum/length of pronotum about 1.15	2. *obtusum* Broun
3 (2)	Sides of the pronotum with a long sinuation in front of the posterior angles which are square (Fig. 1); each side of the pronotum with 3 setiferous punctures; elytra rather depressed, with lateral margins strongly reflexed near the base.	3. *marginale* Broun
	Sides of the pronotum with a short sinuation in front of the posterior angles which are slightly obtuse (Fig. 26); each side with 4 setiferous punctures; elytra normally convex with lateral margins only very slightly reflexed near the base	4. *clivinoides* Castelnau

1. **Diglymma castigatum*** Broun 1909, *Subant. Isl. N. Zeal.*, I, p. 84.

Length: 8–9 mm. *Colour:* black, with antennae and tarsi reddish-brown, remainder of legs dark-brown; ventral surface black. *Head:* front smooth in the middle, with two very short wrinkles and a few punctures on each side; vertex sparsely but distinctly punctured in a transverse band, without a distinct transverse depression. *Pronotum:* ratio greatest width/length = 1·10; disc smooth, sometimes with a very few punctures near the apex and base; median line strongly impressed; sides sinuate in front of the posterior angles, which are very obtuse and rounded; each side with one or two setiferous punctures. *Elytra:* striae very faintly impressed, but quite distinctly though sparsely and irregularly punctured; rather pointed towards the apex, widest at one third of the length from the base. *Microsculpture:* moderately strong on head and pronotum, that on the elytra strong, isodiametric.

The Snares: Nov. 1907 (*G. V. Hudson*), holotype ♀, 1 paratype, and 1 ex.

2. **Diglymma obtusum*** (Broun) 1893, M., IV, pp. 819 (*Metaglymma*).
*Diglymma punctipenne** Broun 1893, M., V, p. 982 (new synonymy).
*Diglymma nigripes** Broun 1893, M., V, p. 982 (new synonymy).
*Diglymma tarsale** Broun 1908, A., (8), II, p. 339 (new synonymy).
*Snofru aemulator** Broun 1908, A., (8), II, p. 341 (new synonymy).
*Diglymma thoracicum** Broun 1917, B., I, p. 359 (new synonymy).

Fig. 29. *Length:* 10–11·5 mm. *Colour:* piceous-black when mature. *Head:* frons smooth in the middle, with the lateral depressions usually faintly punctured; vertex with a shallow, transverse, sparsely punctured depression. *Pronotum:* very narrowly margined from apex to base; apex and base usually sparsely punctured; median line fairly strongly impressed; ratio greatest width/length = 1·05–1·15. *Elytra:* striae distinctly impressed and faintly punctured; intervals only slightly convex. *Ventral surface:* prosternum and proepisternum faintly and sparsely punctured at the sides; mesepisterna, metepisterna and the first three abdominal sternites faintly punctured at the sides. *Microsculpture:* indistinct on head and pronotum; distinct, isodiametric on the elytra.

The genus *Snofru* was distinguished by Broun on the shape of the labial palpi. Examination of the types, however, reveals no difference in the shape of the terminal segment of the labial palpi, between *Diglymma* and *Snofru*.

SOUTH ISLAND. *Otago:* Mount Maungatua (*S. W. Fulton*), holotype and paratype of *D. obtusum*; Puysegur Point, Preservation Inlet, holotypes of *D. punctipenne, D. nigripes* and *D. tarsale* and 3 ex.; Mount Earnslaw, 1 ex.; Stewart Island, 1 ex.; Dusky Bay, West Coast, 1 ex. *Canterbury:* Hunter Mountains, S. Canterbury, 1 ex.

3. **Diglymma marginale*** Broun 1914, B., I, iii, p. 148.

Fig. 1. *Length:* 13 mm. *Colour:* black. *Head:* frons smooth and unpunctured; vertex with a shallow transverse depression which is faintly and sparsely punctured near the middle. *Pronotum:* sparsely and faintly punctured near the apex and base, greatest width equal to the length; each side with three setiferous punctures; the median line strongly impressed. *Elytra:* rather depressed; striae quite strongly impressed and very faintly, almost imperceptibly, punctured; lateral margins quite strongly reflexed near the base; intervals flat. Ventral surface and microsculpture as in *D. obtusum.*

SOUTH ISLAND. *Otago:* Hump Ridge, near Invercargill (*A. Philpott*). Holotype only.

4. **Diglymma clivinoides** Castelnau 1867, *Notes on Australian Coleoptera,* p. 78 (*Maoria*); *Trans. Roy. Soc. Victoria,* VIII, 1868. p. 164; Putzeys, *Ann. Mus. Civ. Genova,* IV, 1873, p. 315; Broun, M., I, p. 12.

*Diglymma ovipenne** Sharp 1886. *Trans. R. Dublin Soc.,* (2), III, p. 361, pl. 2, f. 3; Broun, M., IV, 1893, p. 981; Hudson, *New Zealand Beetles,* 1934, p. 34 (new synonymy).

*Diglymma dubium** Sharp 1886, *loc. cit.;* Broun 1893, *loc. cit.* (new synonymy).

*Diglymma basale** Broun 1917, B., p. 358.

Fig. 26. *Length:* 12–15 mm. *Colour:* black. *Head:* as in *D. obtusum. Pronotum:* as Fig. 26. *Elytra:* with striae distinctly impressed and punctured, intervals slightly convex. Ventral surface and microsculpture as in *D. obtusum.*

The type of *D. ovipenne* is larger (length 15 mm.) and has the elytral striae rather more strongly impressed than the type of *D. dubium* (length 12 mm.), but examination of a series of 26 examples shows that it is not possible to regard these differences as specific.

Type in the Genoa Museum.

SOUTH ISLAND. *Westland:* Greymouth (*Helms*), holotype and paratype of *D. ovipenne* and 11 exs.; Capleston, 1 ex. *Nelson:* Westport (*J. J. Walker*), 1 ex.; Dun Mt., 2,000 ft., 27.xi.27 (*E. S. Gourlay*), 19.i.31 (*E. Fairburn*), 1 ex.; Nelson, 3.vi.27 (*E. S. Gourlay*), 2 ex.; Upper Maitai, 20.xi.32 (*E. S. Gourlay*), 5 ex.; Tophouse, 12.v.34 (*E. S. Gourlay*), 1 ex.; Takaka Hill, 3,500 ft., 14.xii.33 (*E. S. Gourlay*), 2 ex.; Fox Glacier, 31.iii.34 (*E. S. Gourlay*), 1 ex.; Flora Camp, 5,000 ft., 16.ii.31 (*E. S. Gourlay*), 1 ex.; Balloon Hut, 4,300 ft., 15.ii.31 (*E. S. Gourlay*), 3 ex.; Salisbury's Opening, 4,000 ft., 16.ii.31 (E. S. Gourlay), 1 ex.; Cedar Creek Ridge, 2,500 ft., 31.x.37 (*E. S. Gourlay*), 1 ex.; Mount Moa, 2 ex.; Gordon's Knob, 1 ex.; Belgrove, 1 ex.; Kiwi Bush, 1 ex.; Rainy River (*G. G. Hale*), 1 ex.; Arthur's

Pass, 10.1.34 (*G. V. Hudson*), 1 ex. *Canterbury:* Bealey, holotype and paratype of *D. dubium*. *Otago:* Routeburn, near Lake Wakatipu, 1 ex.; Ben Lomond, 3 ex.; Mount Alfred, 2 ex.; Goblin Forest, Homer Forks, 27.i.46 (*R. Forster*), 2 ex.; Milford Sound, 30.i.46 (*R. Forster*), 2 ex.

Genus **Oregus** Putzeys

Putzeys, *Ent. Zeit. Stettin*, XXIX, 1868, p. 307, 326; Broun, M., I, 1880, p. 13.

Generic Characters.

Head: mandibles uniformly narrowed to a sharp point, sharply curved in the apical third, usually with a seta in the scrobe; antennae with $3\frac{2}{3}$ basal segments bare, remainder pubescent; always with two setiferous punctures above the eye on each side, and usually 1–3 additional punctures extending across the vertex; a single seta only arises from each of these punctures; mentum with a blunt, sometimes bifid, median tooth, with two setiferous punctures placed below it; submentum with two setiferous punctures on each side; labial palpi with two setae on the penultimate segment; terminal segments of the palpi compressed and widest at their truncate apices; ligula chitinous with a median carina and two apical setae, the membranous paraglossae extending beyond the apex of the ligula. *Pronotum:* sides not sinuate and posterior angles blunt and rounded; each lateral margin bearing 6–11 setiferous punctures; the basal depressions on each side very small. *Elytra:* ovoid in outline, the shoulders entirely absent; striae distinctly punctured, intervals flat; a distinct scutellary striole is present at the base of the first interval. Setiferous punctures of the abdominal sternites and metacoxae as in *Diglymma*. Tibiae straight, without outer apical prolongations.

Genotype: *Oregus aereus* (White).

Key to the Species of *Oregus*.

Head with 1–3 setiferous punctures on each side of the vertex in addition to two supraorbital setae; eyes prominent, hemispherical (Fig. 22); elytral striae distinctly punctured, but very faintly, or not at all, impressed between the punctures, shoulders entirely absent (Fig. 22), proepisterna very faintly punctured on the inner half; apex of the aedeagus narrow (Fig. 24)	5. *aereus* White
Head with 2–5 setiferous punctures on each side of the vertex in addition to the two supraorbital setae; eyes much less prominent than in *aereus*, not hemispherical (Fig. 21); striae distinctly impressed between the punctures; shoulders not entirely absent (Fig. 21); proepisterna distinctly punctured on the inner half; apex of the aedeagus broad (Fig. 25) ..	6. *inaequalis* Castelnau

5. **Oregus aereus*** White 1846, *Voy. Erebus and Terror*, p. 5, pl. 1, f. 8 (? *Promecoderus*); Castelnau, *Notes on Australian Coleoptera*, 1867, p. 76; *Trans. R. Soc. Victoria*, VIII, 1868, p. 162; Putzeys, *Ent. Zeit., Stettin*, XXIX, 1868, p. 327; Broun, M., I, 1880, p. 13.

Figs. 22, 23, 24. *Length:* 16–20 mm. *Colour:* shining aeneous-black, mouth-parts and antennae dark-brown, tibiae and tarsi dark-brown, femora reddish with apices dark-brown. *Head:* eyes prominent, hemispherical, two setiferous punctures present above each eye and

1–3 setiferous punctures on each side of the vertex; a seta usually present in the mandibular scrobe. *Pronotum:* each lateral margin with 7–10 setiferous punctures; disc smooth, median line faintly impressed. *Elytra:* the absence of shoulders accentuates the pedunculate form; striae not, or only very faintly, impressed, but distinctly punctured; punctures of the inner striae more obvious than those of the outer striae; the 8th striae shows a tendency to bifurcate near the middle, sometimes forming an extra stria between striae 7 and 8. *Ventral surface:* prosternum smooth and unpunctured, proepisterna smooth, faintly punctured near the inner margin; metepisterna closely, strongly and irregularly punctured; remainder of the ventral surface smooth and unpunctured. *Microsculpture:* absent from the head, except in the shallow depression at the vertex; absent or very faint on pronotum, except near the lateral margins and in the lateral depressions; elytra with distinct isodiametric microsculpture along the striae, sometimes covering the intervals.

SOUTH ISLAND. *Nelson:* Motueka, 3 ex. *Canterbury:* Mt. Algidus, 1 ex.; Temuka, 1 ex. *Otago:* Wedderburn, 1 ex.; Eyre Mts. N. of Lumsden, 2 ex.; Taieri, nr. Dunedin, 1 ex.; Dunedin, 8 ex.; Port Chalmers, 2 ex.; Moeraki, 1 ex.; Invercargill, 1 ex.

6. **Oregus inaequalis** Castelnau 1867, *Notes on Australian Coleoptera,* p. 76 (*Mecodema*); *Trans. R. Soc. Victoria,* VIII, 1868, p. 162; Putzeys, *Ann. Mus. Civ. Genova,* IV, 1873, p. 317; Broun, M., I, 1880, p. 13.

Figs. 21, 25. *Length:* 17–19 mm. *Colour:* black, slightly aeneous; tibiae and tarsi dark-brown or black; femora and pro- and meso-coxae dark-red; metacoxae black; antennae with the basal 3½ segments dark-brown or black and the remainder reddish. *Head:* eyes not hemispherical, much less prominent than in *O. aereus;* two setiferous punctures present above each eye and 2–3 setiferous punctures on each side of the vertex in a transverse line; a seta usually present in the mandibular scrobe. *Pronotum:* as in *O. aereus. Elytra:* slightly more transverse than in *O. aereus;* striae 11 in number on each elytron, distinctly impressed and punctured; striae 7–9 fainter and somewhat irregular so that the intervals are not uniform in width; the supernumerary stria is placed between the normal striae 7 and 8 and it does not reach the base. *Ventral surface:* prosternum smooth and unpunctured, the inner half of the proepisterna distinctly marked with punctures of two separate sizes; mesepisterna closely punctured and wrinkled; remainder of the ventral surface smooth and unpunctured. *Microsculpture:* absent, surface shining.

Type in the Genoa Museum.

SOUTH ISLAND. *Otago:* Dunedin, 2 ex.; Port Chalmers, 7 ex.; Waitati, 1 ex.; Invercargill, 1 ex.

GENUS **Mecodema** Blanchard

Blanchard, *Voy. Pole Sud.,* IV, 1853, p. 34; Putzeys, *Ent. Zeit. Stettin,* XXIX, 1868, p. 306, p. 315; Broun, M., I, p. 7.

Generic Characters.

Head: frons often wrinkled and vertex often punctured; eyes prominent, almost hemispherical; a single supraorbital puncture on each side, bearing more than one seta; mandibles large, uniformly

narrowed to the pointed apex, sharply curved in the apical third; mandibles with a number of dorsal grooves and without a seta in the scrobe; mentum with a median tooth, usually bifid; usually with 2 setiferous punctures below the tooth and with 6 setiferous punctures on the submentum; labial palpi with 2 setae on the penultimate segment; terminal segments of all palpi slightly compressed, subcylindrical, truncate; ligula chitinous with a median carina and two apical setae; the membranous paraglossae extend well beyond the apex of the ligula; antennae with 4 or 5 basal segments glabrous, the remainder covered with yellow setae except for a small patch on each side of the base of each segment; segments 1–3 are subcylindrical, segments 4–7 subglobose and slightly compressed. *Pronotum:* lateral margins distinct with 6 or more setiferous punctures on each side, the last seta never at the posterior angle; median groove and lateral basal depressions always present; the disc often with a shallow depression on each side in the apical half. *Elytra:* always striate; soldered together along the suture; hind-wings absent; a row of setiferous punctures on the 7th elytral interval and another row near the lateral margin. *Legs:* slender, the anterior tibiae with a pointed apical prolongation on the outer side; male and female tarsi identical, the basal 4 segments of the anterior tarsi as broad as they are long, and slightly asymmetrical.

Genotype: *Mecodema sculpturatum* Blanchard.

Eighty-two species have been described in this genus. In the following revision this number is reduced to 58.

Mecodema—KEY TO THE SPECIES GROUPS.

1 Elytral intervals 3, 5 and 7 relatively smooth and convex, in contrast to intervals 2, 4 and 6, which are depressed, granular, punctured or dull, the contrast between alternate intervals visible *to the naked eye* (e.g. Figs. 2, 5, 82–90); length always more than 20 mm., often more than 30 mm. .. .. ***costellum* group** (11 species, p. 545)

Elytral intervals 3, 5 and 7 not distinguishable from intervals 2, 4 and 6 in convexity and sculpture, although sometimes differing in width (e.g., Figs. 4, 6–14, 91–123); length sometimes less than 20 mm, very rarely over 28 mm. long 2

2 (1) The 7th and 8th elytral striae much more strongly impressed and/or punctured than striae 1–4; the difference usually visible to the naked eye (e.g., Figs. 3, 6–10, 91–107); striae 1–4 sometimes faint or absent, never represented by rows of unconnected coarse punctures; length always more than 20 mm., usually more than 25 mm. 3

All elytral striae equally strongly impressed and, if punctured, with punctures of about equal size and depth; striae sometimes represented by rows of unconnected coarse punctures (Figs. 4, 11–13, 108–123); striae 1–4 never fainter than striae 5–8 or absent; length usually less than 20 mm., always less than 30 mm. 5

3 (2) Lateral margins of the pronotum strongly crenulate; pronotum usually with deep transverse wrinkles, at least at the sides; lateral margins of the pronotum obviously parallel behind the sinuation (Figs. 91–93); striae 5–8 obliterated or made indistinct by the very coarse, confused puncturation of the sides of the elytra ***ducale* group** (3 species, p. 553)

Lateral margins of the pronotum smooth or only slightly crenulate; pronotum smooth or with weak transverse wrinkles; lateral margins of the pronotum rarely parallel behind the sinuation; all striae clearly defined, sides of the elytra never with coarse, confused puncturation 4

4 (3) Lateral margins of the elytra broadly reflexed; elytral intervals dull, covered with minute, transverse, much-branched wrinkles, even at the base; intervals 1–4 flat on the disc; pronotum (Fig. 6) with posterior angles sharp, acute and slightly recurved; head, pronotum and elytra unusually depressed (Figs. 6, 94) . *laterale* group (2 species, p. 555)

Lateral margins of the elytra only very narrowly or not at all reflexed; elytral intervals not covered by branching wrinkles, at least at the base; intervals 1–4 flat or convex; pronotum with posterior angles never acute and recurved (Figs. 7–10, 95–107) .. . *spinifer* group (16 species, p. 556)

5 (2) The vertex of the head, the pro- and mes-episterna distinctly punctured 6

The head, pro- and mes-episterna unpunctured .. 7

6 (5) Length between 17 and 30 mm.; colour black (Figs. 4, 11–13, 16–20, 108–113) .. .. *alternans* group (15 species, p. 565)

Length less than 17 mm.; colour shining aeneous-brown (Figs. 114–117) .. .. *infimate* group (4 species, p. 573)

7 (5) Posterior coxae without setiferous punctures; larger species, length more than 19 mm.; sides of the pronotum with a long pronounced sinuation (Figs. 14, 118–120); vertex of head with a deep transverse depression; shoulders of the elytra quite distinct .. *curvidens* group (4 species, p. 575)

Posterior coxae with a setiferous puncture near the middle of the anterior margin; smaller species, length less than 19 mm.; pronotum with sides not, or only moderately, sinuate in front of the posterior angles which are obtuse and blunt; vertex of head with only a faint transverse depression; shoulders rounded (Figs. 121–123) .. .. *sulcatum* group (3 species, p. 577)

THE *costellum* GROUP OF SPECIES.

Group Characters. Size large, length 20–39 mm.; elytral intervals 3, 5 and 7 clearly distinguishable from intervals 2, 4 and 6 by their greater smoothness and convexity; intervals 2, 4 and 6 depressed, granular, punctured or dull. All eleven species occur in the South Island, including Stephen's Island.

KEY TO THE *costellum* GROUP OF SPECIES.

1 Prosternum usually unpunctured, at most with a few obsolescent punctures around the coxal cavities; usually over 30 mm. long; pronotum usually unpunctured (Fig. 2), at most with a very few scattered punctures near the anterior margin, never having both prosternum and pronotum punctured (Figs. 82–87) 2

Prosternum always punctured at the sides from the anterior margin to the coxal cavities; less than 26 mm. long; pronotum with at least a transverse band of punctures near the anterior margin (Fig. 5), sometimes with the sides or the whole disc punctured (Figs. 88–90) 8

2 (1) Elytra with the surface of intervals 2, 4, 6 and 8 dull, with very strong reticulate microsculpture (× 60); intervals 1, 3, 5 and 7 usually shining (Figs. 82–85) .. 3

Elytra with the surface of intervals 2, 4, 6 and 8 shining between punctures, without or with very faint microsculpture (× 60); intervals 1, 3, 5 and 7 shining (Figs. 86, 87) 7

3 (2) Head and pronotum black, elytra reddish-brown; elytral intervals 3, 5 and 7 greatly reduced, very narrow and irregular, but still visible to the naked eye; intervals 2, 4, 6 and 8 proportionately enlarged, the surface irregular with obsolescent puncture; all intervals covered with reticulate microsculpture (Fig. 82) .. .. .. 7. *lewisi* Broun

Head and pronotum black, elytra usually black, at most with alternate intervals brown; elytral intervals 1, 3, 5 and 7 shining, without or with relatively faint microsculpture 4

4 (3) Sides of the pronotum not sinuate in front of the posterior angles which are almost completely rounded off; intervals 1, 3, 5, 7 and 9 costate; alternate intervals flat, with coarse obsolescent punctures (Fig. 83) . 8. *costipenne* Broun

Sides of the pronotum strongly sinuate in front of the posterior angles 5

5 (4) Elytral intervals 1, 3, 5, 7 and 9 strongly costate; black; alternate intervals 2, 4, 6 and 8 flat, reddish-brown, with a few minute scattered punctures; head with transverse depression of vertex broad and very shallow, unpunctured or with up to 6 very faint punctures on each side (Fig. 84) 9. *chiltoni* Broun

Elytral intervals 1, 3, 5, 7 and 9 only slightly to moderately convex; alternate intervals 2, 4, 6 and 8 unpunctured, or very strongly and coarsely punctured; head with transverse depression of the vertex narrow and distinctly impressed and punctured (Stephen's Island) 6

6 (5) Elytral intervals 1, 3 and 5 at least twice as wide as intervals 2 and 4; intervals unpunctured; striae closely and regularly punctured; intervals almost flat on the disc, the 1st, 3rd, 5th and 7th more convex at the base (Stephen's Island), (Fig. 2) .. 10. *punctellum* Broun

Elytral intervals 1, 3 and 5 in general narrower than intervals 2 and 4, but outlines of intervals are very irregular, due to the very coarse puncturation of intervals 2, 4, 6 and 8; the surface of the intervals between the punctures with irregular microsculpture leaving shiny patches (Fig. 85), (Stephen's I., Cook Strait) .. .. .. 11. *costellum* Broun

7 (2) Larger, length more than 30 mm.; elytral intervals 3, 5 and 7 distinctly convex in the basal half; head with vertex coarsely punctured and wrinkled (Fig. 86) . 12. *gordonense* Broun

Smaller, length less than 30 mm.; elytral intervals 3 and 5 flat except at the base; head with vertex unpunctured, or faintly punctured, smooth or faintly wrinkled (Fig. 87) .. .. 13. *howitti* Castelnau

8 (1)	Posterior coxa with a large puncture or pit near the posterior outer angle; the 7th elytral interval broken into six or more short lengths by the depressions in which the setiferous punctures are set; the resulting catenulate appearance visible to the naked eye	9
	Posterior coxa without a puncture in the posterior half; the 7th elytral interval not broken into short lengths by the setiferous depressions	10
9 (8)	The third elytral interval with one or more setiferous punctures in the basal half; vertex of the head and the anterior and posterior margins of the pronotum closely punctured; intervals 3, 5 and 7 broken into short lengths or bullae by the larger depressions of the setiferous punctures .	14. *bullatum* Broun
	The 3rd elytral interval without setiferous punctures in the basal half; vertex of the head, anterior and posterior margins of the pronotum not, or only sparingly, punctured; intervals 3 and 5 appear continuous to the naked eye (Fig. 5) . ..	15. *litoreum* Broun
10 (8)	Disc of the pronotum sometimes transversely wrinkled, but not, or only faintly and very sparsely, punctured; head with no punctures anterior to the level of the front margin of the eyes; clypeus never punctured (Fig. 88)	16. *rectolineatum* Castelnau
	Disc of the pronotum strongly punctured, sometimes wrinkled; head strongly punctured, the punctures extending on to the clypeus	11
11 (10)	Head and pronotum coarsely punctured and strongly wrinkled (Fig. 89)	17. *sculpturatum* Blanchard
	Head and pronotum coarsely punctured, but only faintly wrinkled (Fig. 90) ..	var. *puncticolle* Broun

7. **Mecodema lewisi*** Broun 1908, A., (8), II, p. 337.

Figs. 42, 82. *Length:* 34–36 mm. *Head:* vertex with only a slight depression, marked by a few obsolescent punctures; the lateral clypeal punctures bearing two setae and the supraorbital punctures four setae; mentum with two setiferous punctures; submentum with three on each side. *Pronotum:* ratio 1·0/1·70/1·50/1·35, rather straight and parallel sided in the anterior half; base and apex straighter than in other species; each side with 9–11 setiferous punctures; surface faintly wrinkled. *Elytra:* intervals 1, 3, 5, 7 and 9 less than half as wide as the alternate intervals, just visible to the naked eye; intervals 2, 4, 6 and 8 each marked by about four irregular rows of obsolescent punctures, the punctures often connected by wrinkles, especially in the outer intervals; colour reddish, especially at the sides. *Microsculpture:* faint, isodiametric on the whole upper surface. *Ventral surface:* prosternum and proepisterna unpunctured; mesepisterna with about 5 large shallow punctures. Male genitalia with both parameres setiferous.

SOUTH ISLAND. *Canterbury:* Broken River (tributary of Waimakariri River), holotype ♂, paratype, and 1 ex.

8. **Mecodema costipenne*** Broun 1914, B., ii, p. 82; Hudson, N., p. 32.

Fig. 83. *Length:* 25–33 mm. *Head:* vertex coarsely punctured. *Pronotum:* with sides curved outwards from apex to base without

sinuation before the posterior angles which are very obtuse or rounded off; lateral margins with 6–9 setiferous punctures; disc sometimes transversely wrinkled or with a few punctures around the ends of the median groove. *Elytra:* intervals 1, 3, 5, 7 and 9 strongly convex and shining; alternate intervals rather flat, dull, with strong isodiametric microsculpture and widely separated (*ca.* 5 diameters) obsolescent punctures; the 7th interval with three setiferous punctures in the basal half on the middle or the inner side of the interval, and three setiferous punctures in the apical half on the outer side of the interval. *Ventral surface:* pro- and mes-episterna quite faintly, sparsely and irregularly punctured. *Microsculpture:* distinct, isodiametric on head and pronotum; strong, isodiametric, on elytral intervals 2, 4, 6 and 8, especially strong in punctures.

SOUTH ISLAND. *Otago:* Routeburn, Lake Wakatipu (*G. V. Hudson*), holotype ♀; Lake Paradise, Wakatipu, 17.ii.03 (*G. V. Hudson*), 1 ex.; Mount Alfred, Lake Wakatipu, 5 ex.; Bold Peak, i.45 (*E. S. Gourlay*), 1 ex.; Mt. Earnslaw, 4 ex., 6.ii.43 (*J. T. Salmon*), 1 ex.

Hudson states that this species is occasionally found under logs in the forest at the head of Lake Wakatipu.

9. **Mecodema chiltoni*** Broun 1917, B., v, p. 351.

Fig. 84. *Length:* 36–38 mm.; width of elytra 10·5 mm. *Head:* vertex with the transverse depression and punctures almost obliterated; mentum without setiferous punctures; submentum with 3 setiferous punctures on each side. *Pronotum:* with sides rather straight in front, sinuate in front of the posterior angles; each lateral margin with 8 setiferous punctures, disc unpunctured; ratio (holotype) 1·0/1·62/1·33/1·24. *Elytra:* striae marked by faint punctures separated by more than three times their own width; the 7th interval bearing in the basal half 4 or 5 setiferous punctures which are clearly visible to the naked eye, and are situated on the middle of the interval; the 5 setiferous punctures of the apical half of the 7th interval situated on the outer side of the interval. *Ventral surface:* prosternum unpunctured; first three abdominal sternites punctured in their basal halves. *Microsculpture:* strong, isodiametric on head, pronotum and the flat elytral intervals, absent from the convex intervals. Male genitalia with both parameres setiferous.

SOUTH ISLAND. *Otago:* Mount Dick, S. end of Lake Wakatipu (*T. Hall*), holotype, ♀ only; Nevis, 2,900 ft., 19.xii,38 (*M. R. Renn Foord*), 1 ex. and elytra of 4 others.

10. **Mecodema punctellum*** Broun 1921, B., vii, p. 596; Hudson, N., p. 33.

Fig. 2. *Length:* 38·5 mm., greatest width of the elytra 11·7 mm. *Head:* vertex with transverse depression strongly impressed in the middle and distinctly punctured; lateral setiferous puncture of the clypeus bearing 3 setae instead of the normal one; supraorbital setiferous puncture bearing 8 setae; mentum without setiferous punctures; submentum with 3 on each side. *Pronotum:* ratio (holotype) 1·0/1·82/1·58/1·25, i.e. more contracted at the base than in *M. chiltoni*. Sides sinuate in front of the posterior angles; each lateral margin with 12 or 13 setiferous punctures. *Elytra:* broad and depressed; intervals 1, 3, 5 and 7 are about three times as wide as intervals

2, 4 and 6, flat or very slightly convex on the disc, more strongly convex at the base; striae 1–3 faintly impressed but quite distinctly punctured, the punctures separated by 2–3 times their own diameter, striae 4–8 progressively more strongly impressed and coarsely punctured; setiferous punctures of the 7th interval as in *M. chiltoni*. *Ventral surface:* proepisterna unpunctured; prosternum with a few very faint punctures in front of the coxae; mesepisterna with strong coarse puncturation, basal four abdominal sternites faintly and sparsely punctured. *Microsculpture:* head and pronotum shining, microsculpture present only in the lateral channels, where it is very faint; microsculpture strong, isodiametric along the elytral striae; intervals 2, 4, 6 and 8 are narrow so that the microsculpture spreads across them while the broad alternate intervals are shining, free from microsculpture except at the sides.

SOUTH ISLAND. *Stephen's Island, Cook Strait,* holotype ♂ and 1 other example, 9–12.i.31 (*E. S. Gourlay*).

11. **Mecodema costellum*** Broun 1903 A., (7), xi, p. 451; Hudson, N., p. 33.

Figs. 44, 85. *Length:* 30–39 mm. *Head:* vertex with transverse groove well impressed and coarsely punctured; mentum with two setiferous punctures and the submentum with three on each side. *Pronotum:* ratio 1·0/1·80/1·50/1·40, rather trapezoidal in shape, widest close to the apex, each side with 7 setiferous punctures. *Elytra:* intervals 1 and 3 flat on the disc, becoming quite strongly convex at the base; intervals 5 and 7 convex throughout, more strongly so at the base; intervals 2, 4, 6 and 8 twice as wide as intervals 1, 3, 5 and three times as wide as interval 7; the striae indicated only by rows of punctures delimiting the narrower smooth intervals, the punctures separated by 2–4 times their own diameters; the broad intervals bearing two irregular rows of punctures more or less evenly spaced between the rows of punctures of the striae, the punctures connected by irregular radiating wrinkles. *Ventral surface:* prosternum unpunctured, proepisterna faintly punctured; mesepisterna with a few coarse punctures; first two abdominal sternites faintly punctured. *Microsculpture:* isodiametric, faint except on the broad intervals. Apex of aedeagus not expanded, rounded.

SOUTH ISLAND. *Stephen's Island, Cook Strait,* holotype ♂ and 22 examples, very abundant under log and stones (*Hudson*).

12. **Mecodema gordonense*** Broun 1917, B., v, p. 357.

Figs. 45, 86. *Length:* 33–38 mm. *Colour:* aeneous-black. *Head:* transverse depression of the vertex distinct, coarsely punctured and irregularly wrinkled; mentum with two setiferous punctures; submentum with four setiferous punctures on each side. *Pronotum:* ratio 1·0/1·7/1 35/1·35; sides with 7–10 setiferous punctures; disc transversely wrinkled; widest close to the apex, the sides straight in the anterior half, converging towards the base, strongly sinuate in front of the posterior angles. *Elytra:* as in *M. costellum*, but with the wide intervals more strongly punctured and with adjacent convex intervals irregularly united by occasional convex transverse bars. *Ventral surface:* prosternum with a few large punctures in front of the coxae; proepisterna faintly punctured; mesepisterna coarsely

punctured and transversely wrinkled. *Microsculpture:* absent except in the bottoms of the punctures and in the basal depressions of the pronotum. Apex of the aedeagus expanded and angular, the left paramere unchitinised at the apex, with a few short setae along the lower margin and one seta at the apex.

SOUTH ISLAND. *Nelson:* Gordon's Knob, nr. Tophouse, holotype ♂, allotype, 1 ex., 10.vi.38 (*R. M. King*); Glenhope, 1 ♀; Rotoiti Lake, Tophouse, 1 ♂; Mt. Duppa, 3,100 ft., 6 ex.; Motupiko, 1 ex.

13. **Mecodema howitti** Castelnau 1867, *Notes on Australian Coleoptera,* p. 73; *Trans. R. Soc. Victoria,* viii, 1868, p. 159; Putzeys, *Ann. Mus. Civ., Genova,* iv, 1873, p. 308; H. W. Bates, *Ann. Mag. Nat Hist.,* (4), xiii, 1874, p. 236.
Mecodema rectolineatum Putzeys 1868, *Ent. Zeit. Stettin,* xxix, p. 317 (*non* Cast.); *Ann. Mus. Civ. Genova,* iv, 1873, p. 308.
*Mecodema walkeri** Broun 1904, A. (7), xiv, p. 43 (new synonymy).

Figs. 43, 87. *Length:* 26–31 mm. *Colour:* black. *Head:* vertex smooth, with depression, punctures very faint or absent; mentum without setiferous punctures, submentum with 3 on each side. *Pronotum:* ratio 1·0/1·67/1 37/1·30 (mean of 3 ex.); sides sinuate in front of the posterior angles, which are very blunt, each lateral margin with 10–12 setiferous punctures. *Elytra:* striae not impressed, their positions rather indistinctly marked by rows of punctures, the punctures separated from each other by 3 or 4 diameters; intervals 1 and 2 flat, remainder slightly convex, more strongly convex at the base; intervals 1, 3, 5 and 7 smooth though crossed by fine transverse wrinkles; intervals 2, 4, 6 and 8 with two irregular rows of punctures similar to those marking the intervals, making four rows in all, the punctures becoming much more coarse towards the sides of the elytra; punctures frequently connected by fine strigae. *Ventral surface:* proepisterna with a few punctures and strigae near the posterior margin; mesepisterna at most with a very few faint punctures. *Microsculpture:* faint, isodiametric.

Type in the Genoa Museum.

SOUTH ISLAND. *Canterbury:* Christchurch, Summit Road, 26.iii.39 (*R. Allan*), 3 ex.; Akaroa, holotype of *M. walkeri* and 15 ex.; 9.iii.33 (*E. Fairburn*), 3 ex.; Hilltop, 2,000 ft., 28.xii.42 (*C. E. Clarke*), 2 ex.

14. **Mecodema bullatum*** Lewis 1902, T., xxxiv, p. 202.
*Mecodema intricatum** Broun 1903, A. (7), xi, p. 451 (new synonymy).

Fig. 46. *Length:* 23–28 mm. This species is easily distinguished by the catenulate 3rd, 5th and 7th elytral intervals. The holotype of *M. intricatum* bears the label "synon 3470," from which it is clear that Broun had recognised that his species was synonymous with *M. bullatum. Colour:* black. *Head:* frons transversely wrinkled in the middle, longitudinally wrinkled at the sides; vertex irregularly punctured and wrinkled but without transverse depression. *Pronotum:* sides each with 12 setiferous punctures; disc transversely wrinkled, apex and base longitudinally wrinkled and faintly punctured; sides strongly curved outwards and slightly sinuate before the basal angles which are obtuse and blunt. *Elytra:* faintly and irregularly impressed and finely punctured, the punctures separated by 4 or 5 times their diameters; intervals 1, 3, 5 and 7 about 1½ times as wide as intervals, 2, 4, 6 and 8 and more convex; intervals 1, 3, 5 and 7 are broken

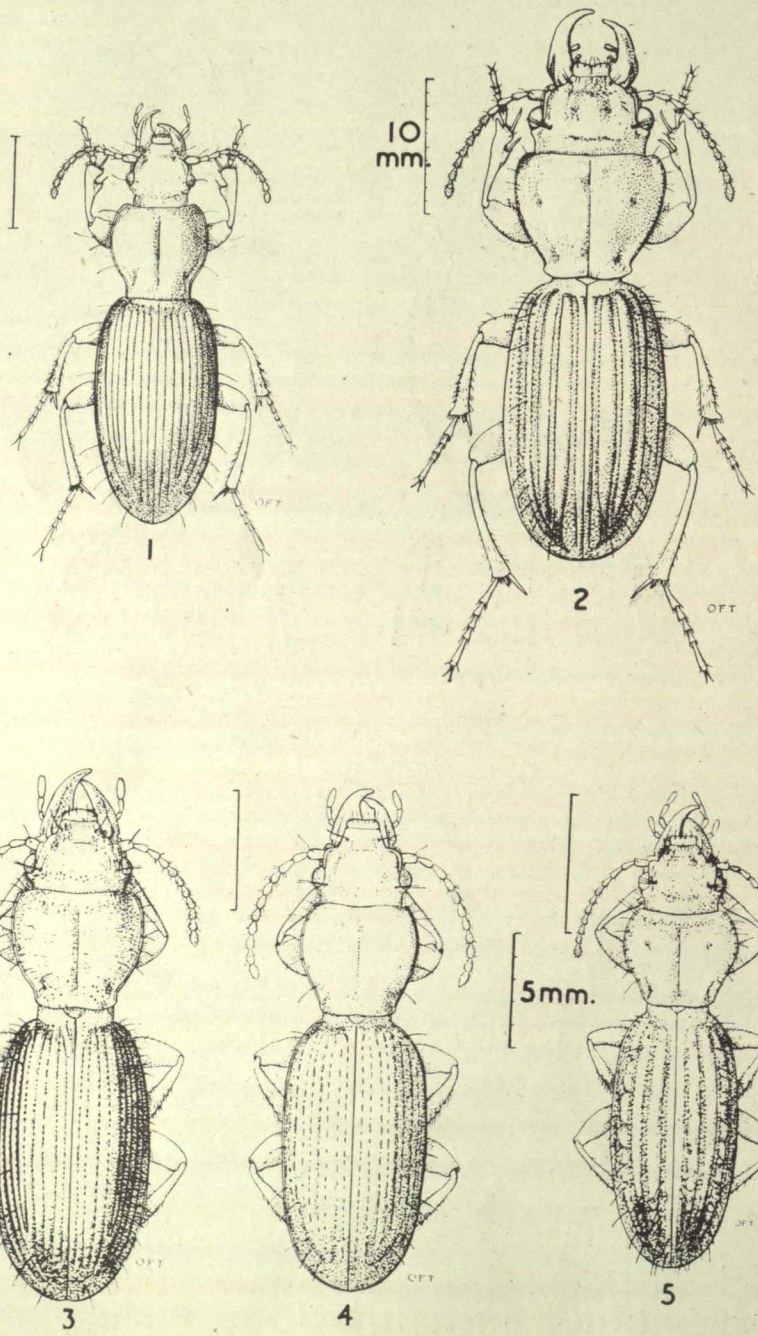

FIG. 1—*Diglymma marginale* Broun. FIG. 2—*Mecodema punctellum* Broun. FIG. 3—*Mecodema dux* sp.n. FIG. 4—*Mecodema proximus* sp.n. FIG. 5—*Mecodema litoreum* Broun.

To face page 550]

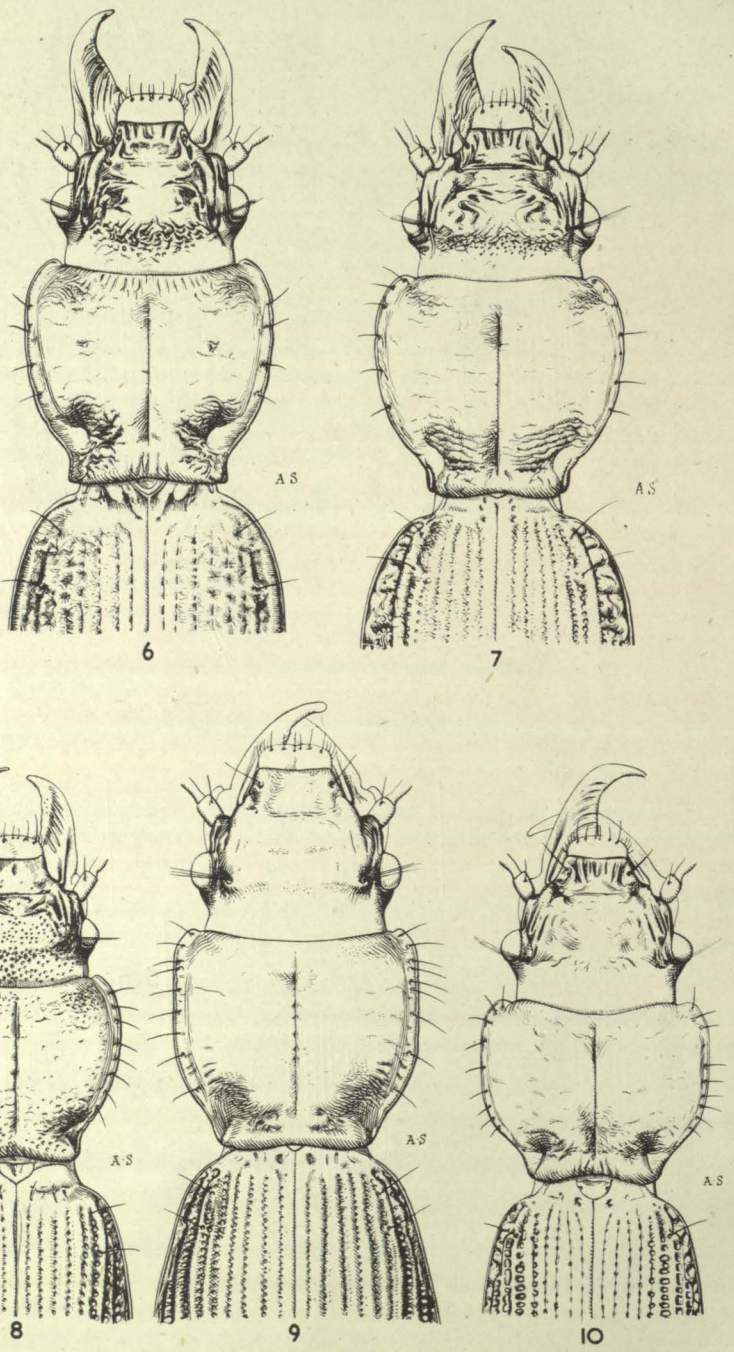

FIG. 6—*Mecodema laterale* Broun. FIG. 7—*Mecodema validum* Broun.
FIG. 8—*Mecodema impressum* Castelnau. FIG. 9—*Mecodema laeviceps* Broun.
FIG. 10—*Mecodema gourlayi* sp.n.

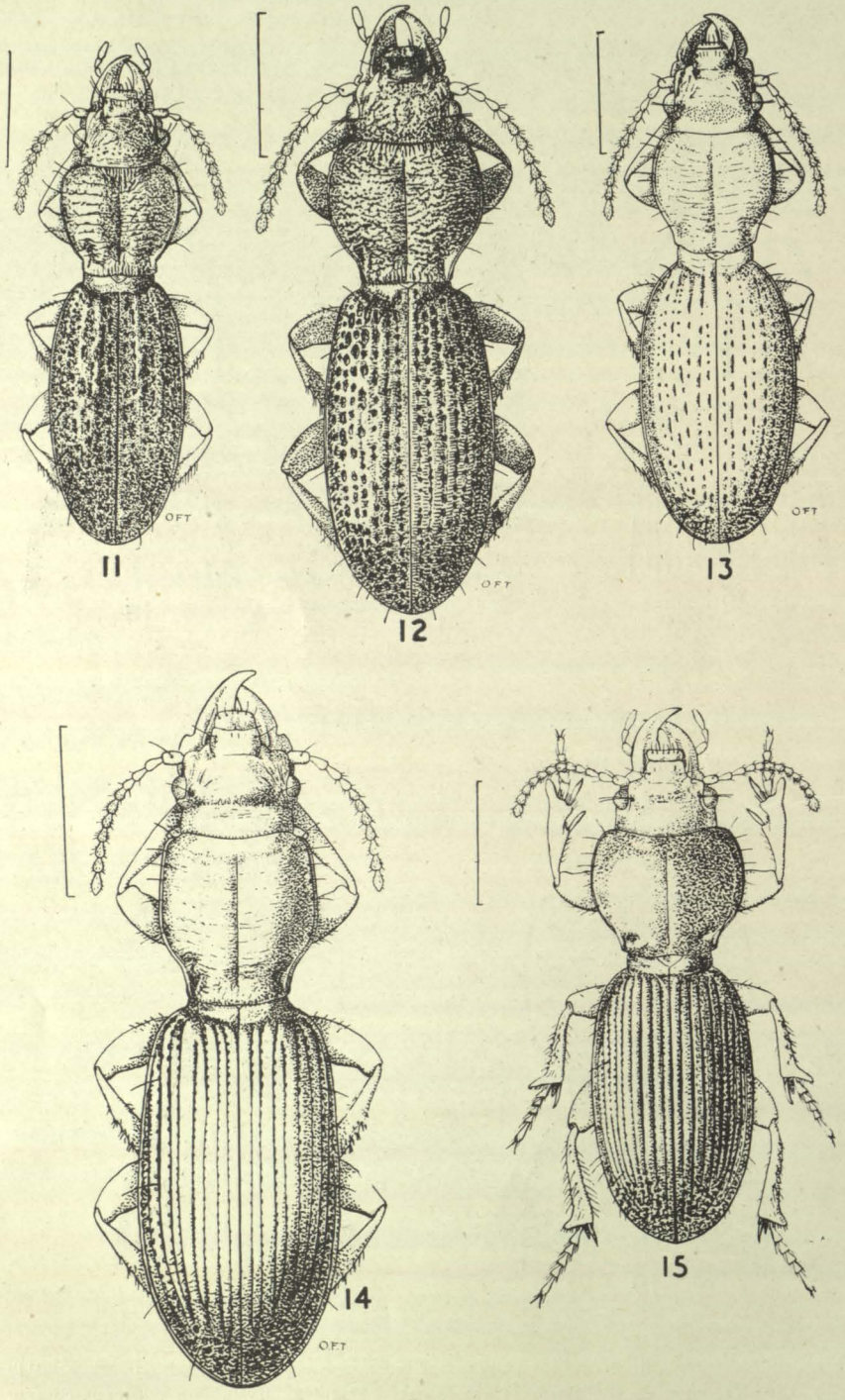

FIG. 11—*Mecodema nitidum* Broun. FIG. 12—*Mecodema persculptum* Broun.
FIG. 13—*Mecodema longicolle* Broun. FIG. 14—*Mecodema pluto* sp.n.
FIG. 15—*Metaglymma tibiale* (Castelnau).

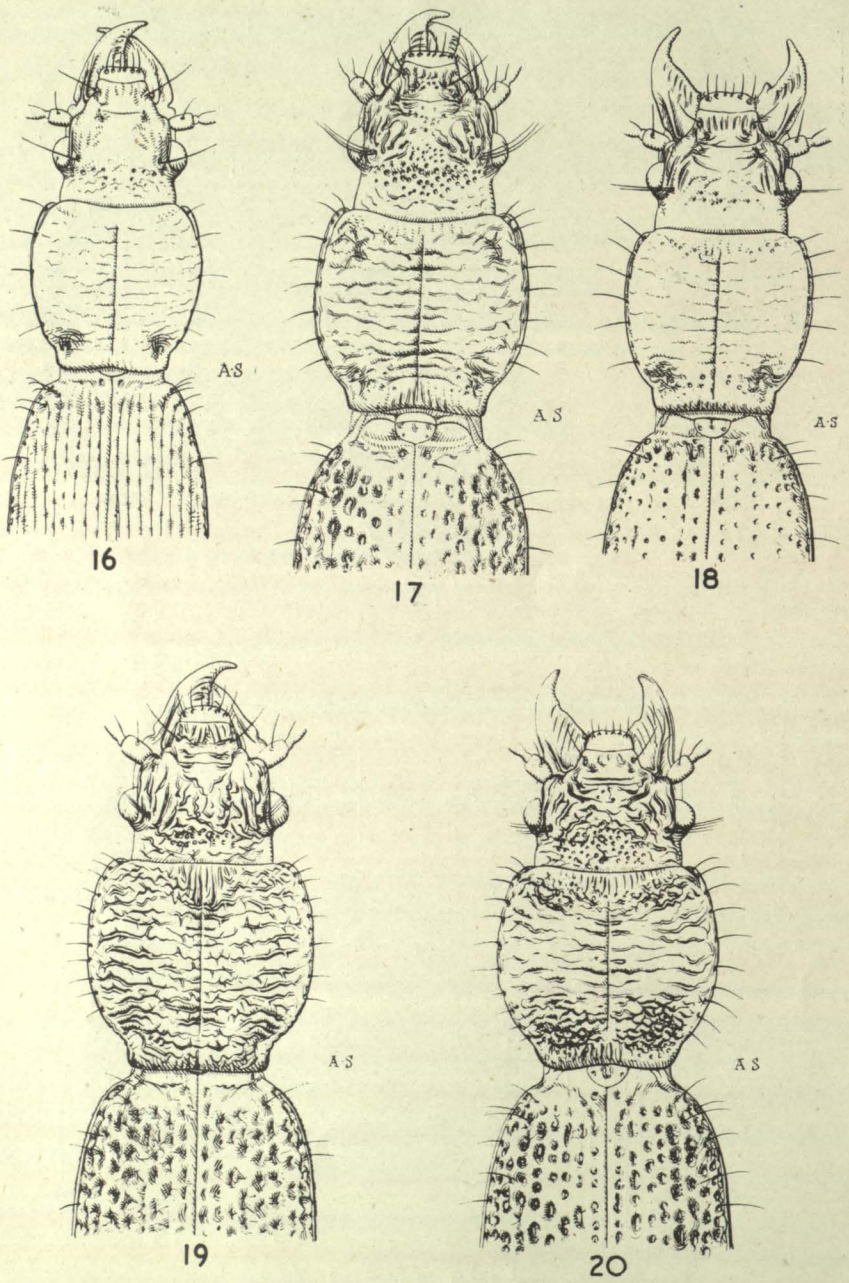

FIG. 16—*Mecodema strictum* sp.n. FIG. 17—*Mecodema metallicum* Sharp.
FIG. 18—*Mecodema punctatum* (Castelnau). FIG. 19—*Mecodema rugiceps* Sharp.
FIG. 20—*Mecodema florae* sp.n.

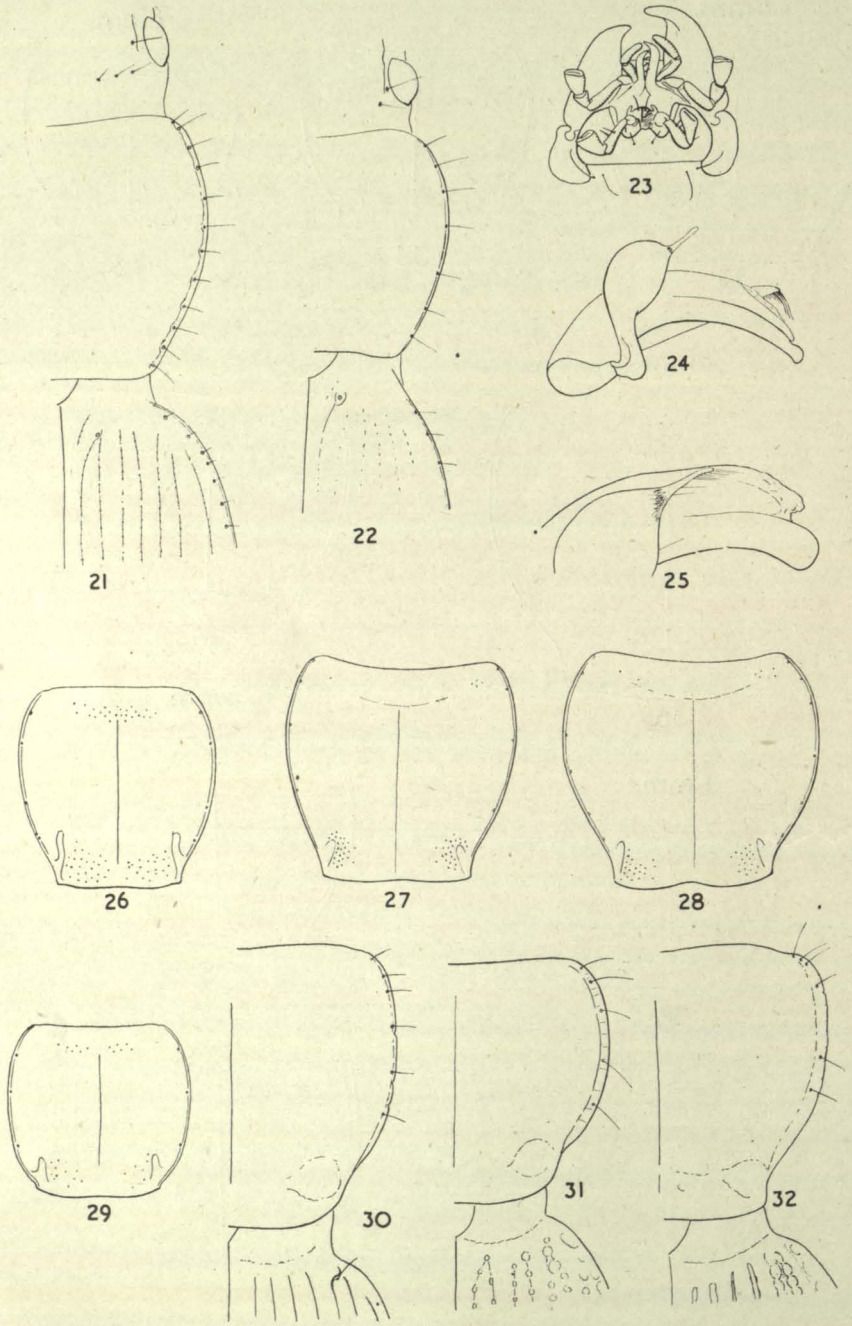

FIG. 21—*Oregus inaequalis* Castelnau. FIG. 22—*Oregus aereus* White. FIG. 23—Mouth-parts of *Oregus aereus* White. FIG. 24—Aedeagus, *Oregus aereus* White. FIG. 25—Aedeagus, *Oregus inaequalis* Castelnau. FIG. 26—*Diglymma clivinoides* (Castelnau). FIG. 27—*Mecodema elongatum* Castelnau. FIG. 28—*Mecodema morio* (Castelnau). FIG. 29—*Diglymma obtusum* Broun. FIG. 30—*Metaglymma tibiale* (Castelnau). FIG. 31—*Metaglymma aberrans* Putzeys. FIG. 32—*Metaglymma monilifer* Bates.

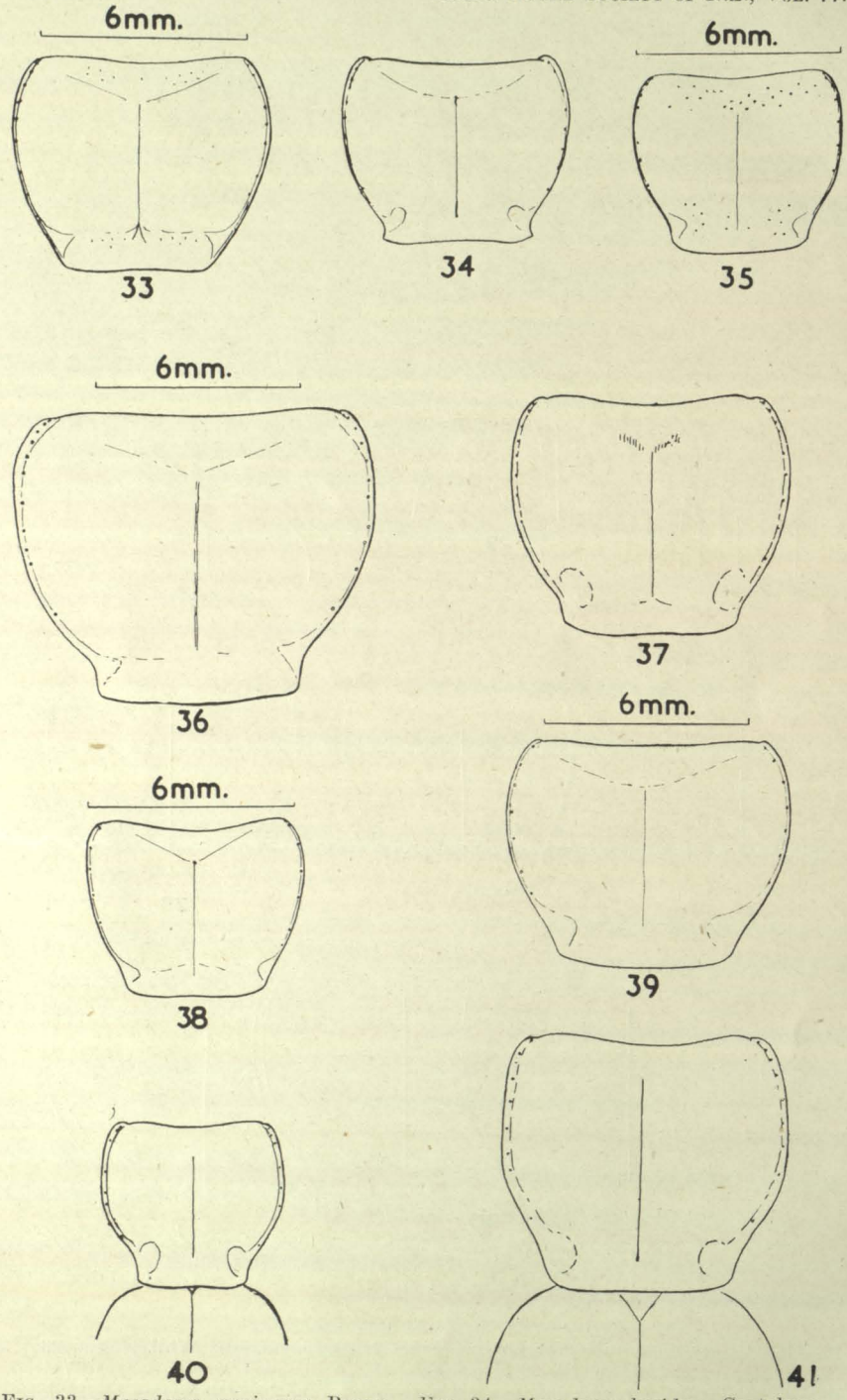

FIG. 33—*Mecodema quoinense* Broun. FIG. 34—*Mecodema lucidum* Castelnau.
FIG. 35—*Mecodema huttense* Broun. FIG. 36—*Mecodema o'connori* Broun.
FIG. 37—*Mecodema hector* sp.n. FIG. 38—*Mecodema constrictum* Broun.
FIG. 39—*Mecodema fulgidum* Broun. FIG. 40—*Mecodema alternans* Castelnau.
FIG. 41—*Mecodema hudsoni* Broun.

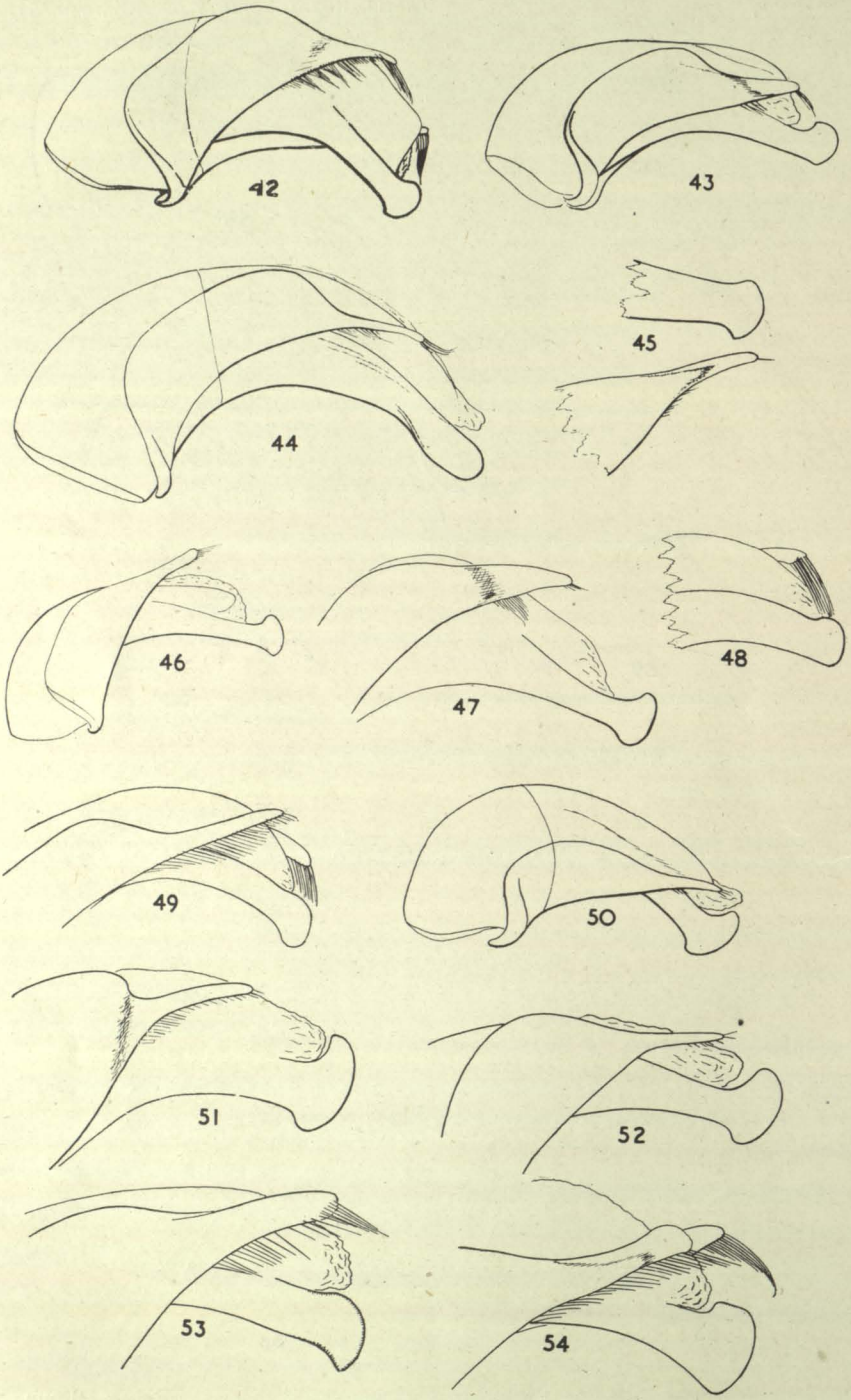

FIG. 42—*Mecodema lewisi* Broun. FIG. 43—*Mecodema howitti* Castelnau. FIG. 44—*Mecodema costellum* Broun. FIG. 45—*Mecodema gordonense* Broun. FIG. 46—*Mecodema bullatum* Broun. FIG. 47—*Mecodema litoreum* Broun. FIG. 48—*Mecodema rectolineatum* Castelnau. FIG. 49—*Mecodema sculpturatum* Blanchard. FIG. 50—*Mecodema ducale* Sharp. FIG. 51—*Mecodema crenaticolle* Redtenbacher. FIG. 52—*Mecodema crenicolle* Castelnau. FIG. 53—*Mecodema laterale* Broun. FIG. 54—*Mecodema allani* Fairburn.

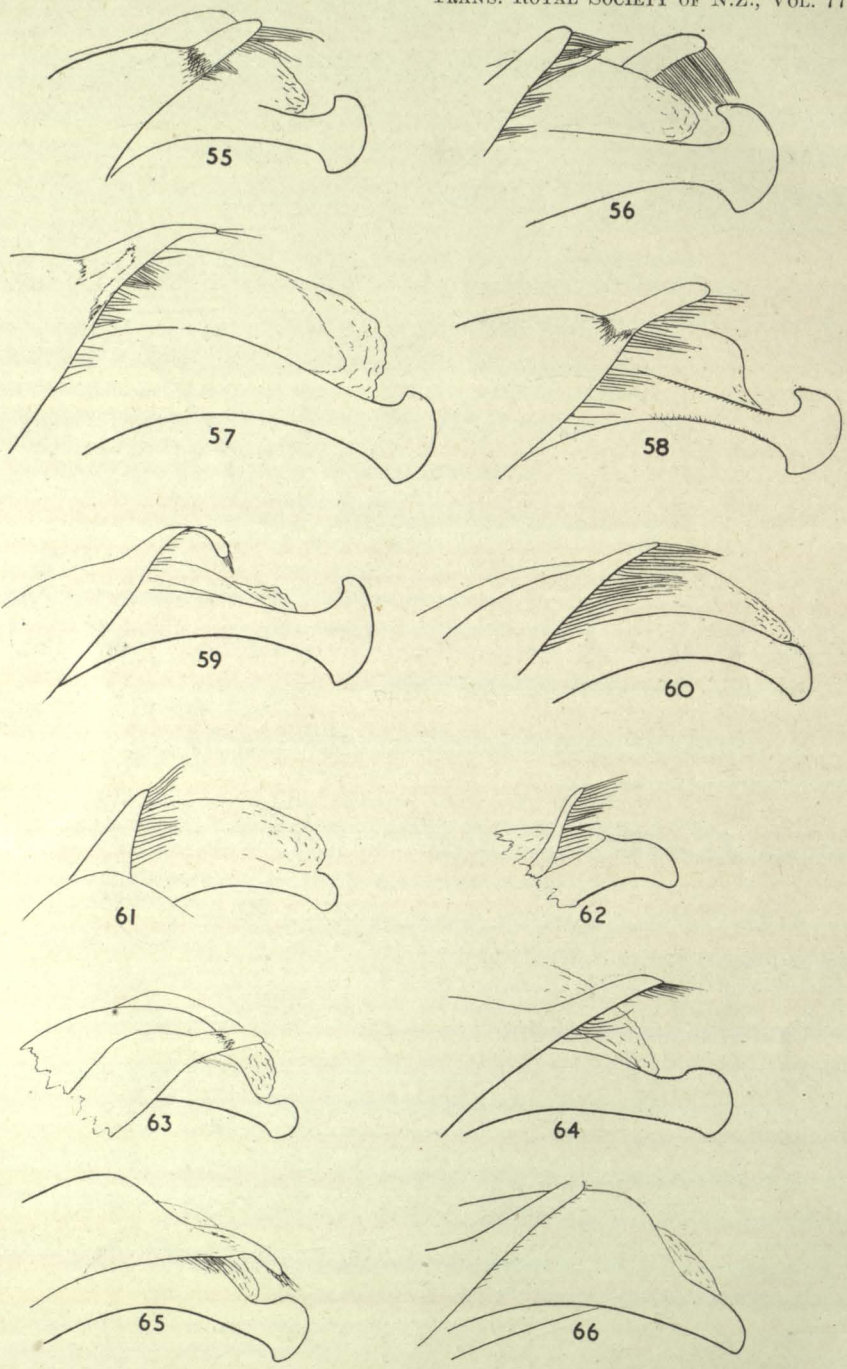

FIG. 55—*Mecodema simplex* Castelnau. FIG. 56—*Mecodema validum* Broun. FIG. 57—*Mecodema o'connori* Broun. FIG. 58—*Mecodema hector* sp.n. FIG. 59—*Mecodema spinifer* Broun. FIG. 60—*Mecodema lucidum* Castelnau. FIG. 61—*Mecodema impressum* Castelnau. FIG. 62—*Mecodema huttense* Broun. FIG. 63—*Mecodema dux* sp.n. FIG. 64—*Mecodema fulgidum* Broun. FIG. 65—*Mecodema constrictum* Broun. FIG. 66—*Mecodema rex* sp.n.

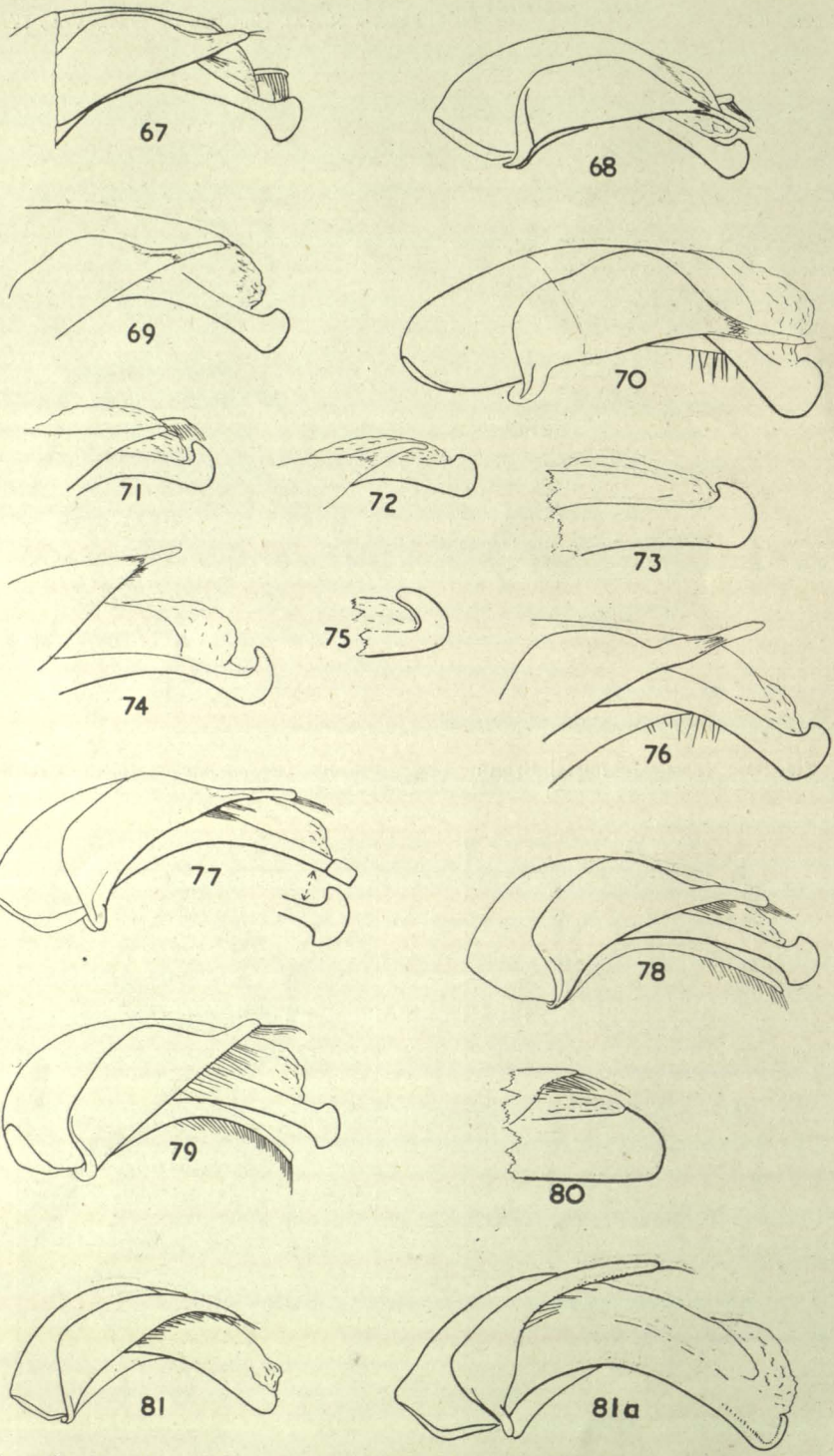

FIG. 67—*Mecodema alternans* Castelnau. FIG. 68—*Mecodema rugiceps* Sharp. FIG. 69—*Mecodema nitidum* Broun. FIG. 70—*Mecodema punctatum* (Castelnau). FIG. 71—*Mecodema proximus* sp.n. FIG. 72—*Mecodema strictum* sp.n. FIG. 73—*Mecodema persculptum* Broun. FIG. 74—*Mecodema longicolle* Broun. FIG. 75—*Mecodema metallicum* Sharp. FIG. 76—*Mecodema florae* sp.n. FIG. 77—*Mecodema infimate* Broun. FIG. 78—*Mecodema morio* (Castelnau). FIG. 79—*Mecodema elongatum* Castelnau. FIG. 80—*Mecodema occiputale* Broun. FIG. 81—*Brullea antarctica* Castelnau. FIG. 81a—*Metaglymma tibiale* (Castelnau).

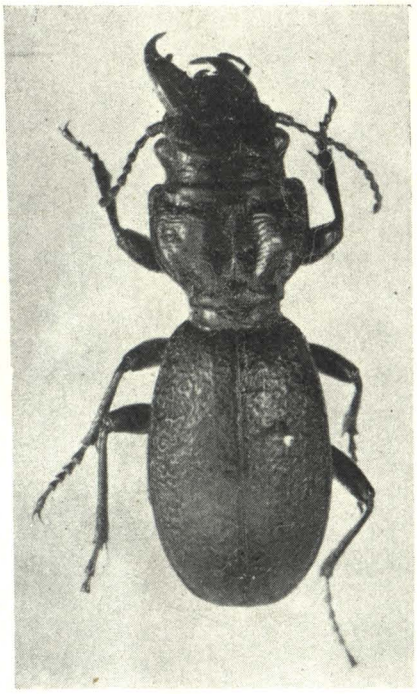

FIG. 82—*Mecodema lewisi* Broun

FIG. 83—*Mecodema costipenne* Broun

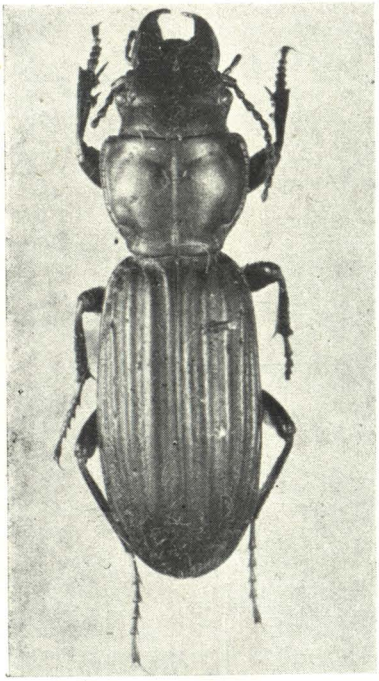

FIG. 84—*Mecodema chiltoni* Broun

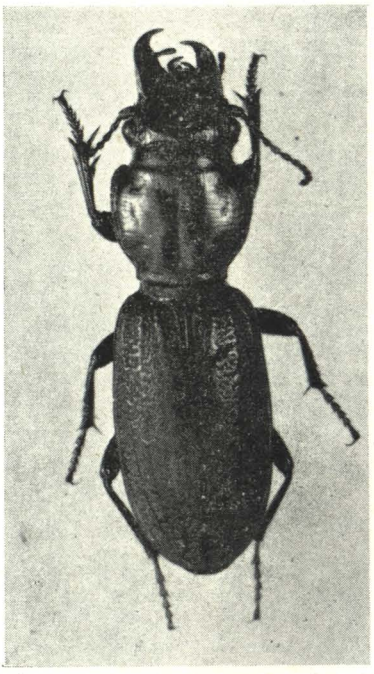

FIG. 85—*Mecodema costellum* Broun

FIG. 86—*Mecodema gordonense* Broun

FIG. 87—*Mecodema howitti* Cast.

FIG. 88—*Mecodema rectolineatum* Cast.

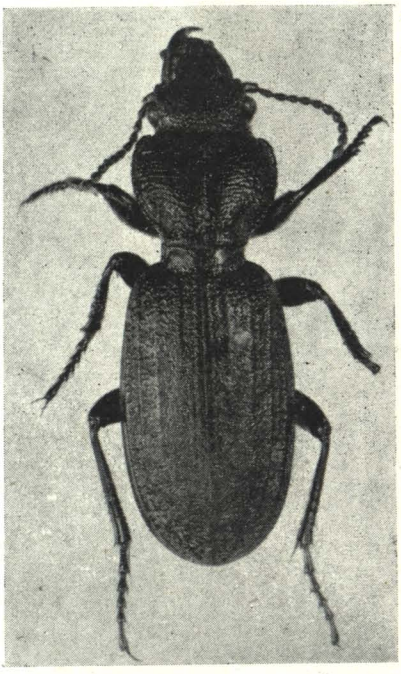

FIG. 89—*Mecodema sculpturatum* Blanch.

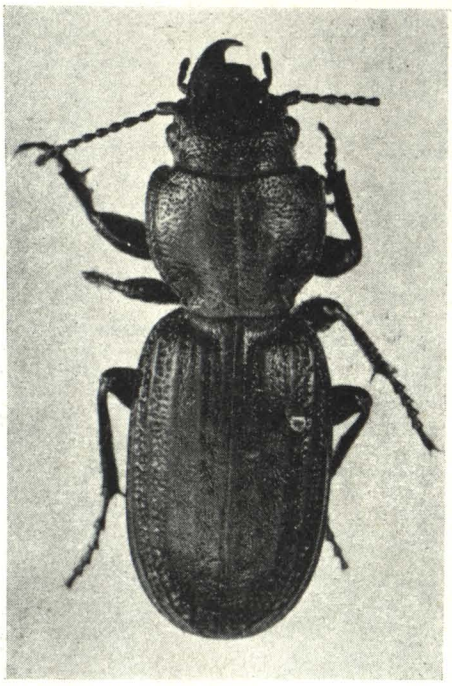

FIG. 90—*Mecodema sculpturatum* Blanch. var. *puncticolle* Broun

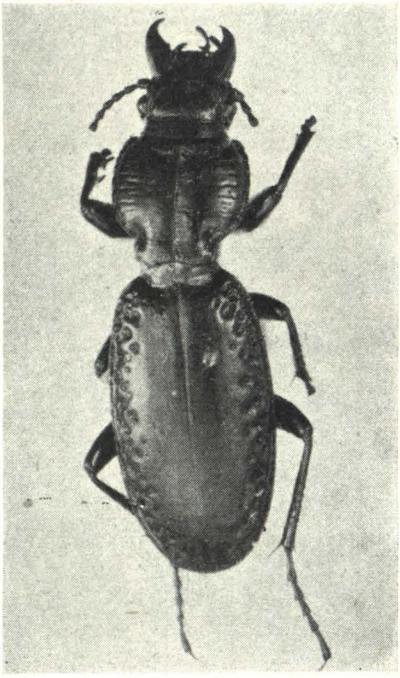

FIG. 91—*Mecodema ducale* Sharp

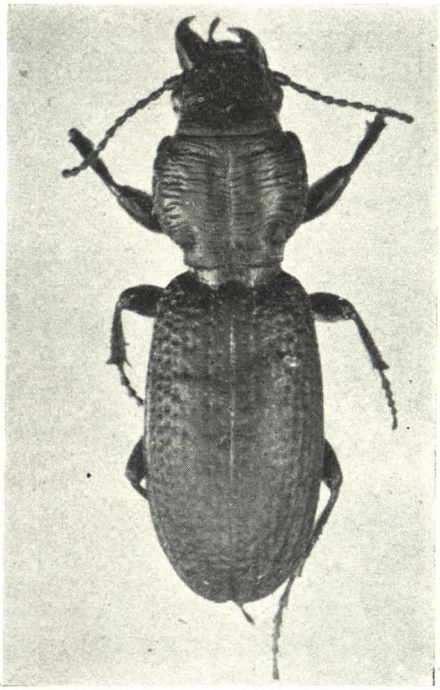

FIG. 92—*Mecodema crenaticolle* Redt.

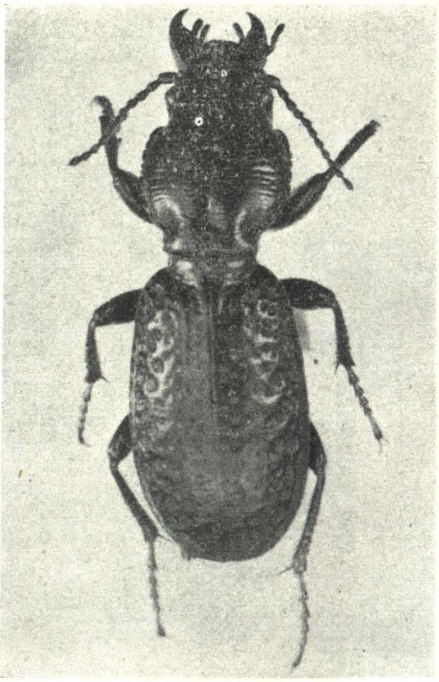

FIG. 93—*Mecodema crenicolle* Cast.

FIG. 94—*Mecodema allani* Fairburn

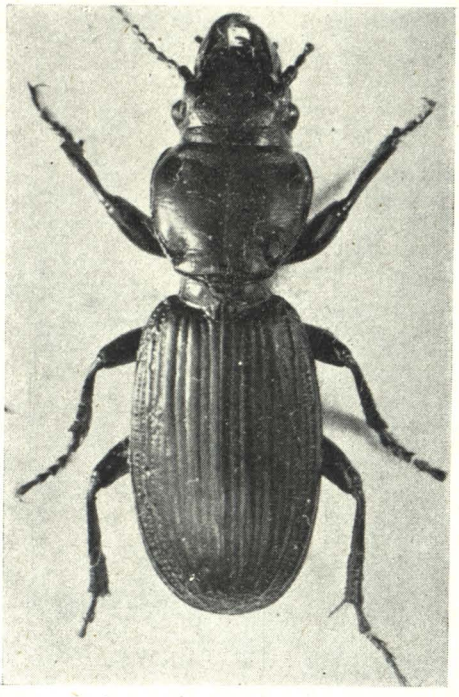

FIG. 95—*Mecodema quoinense* Broun

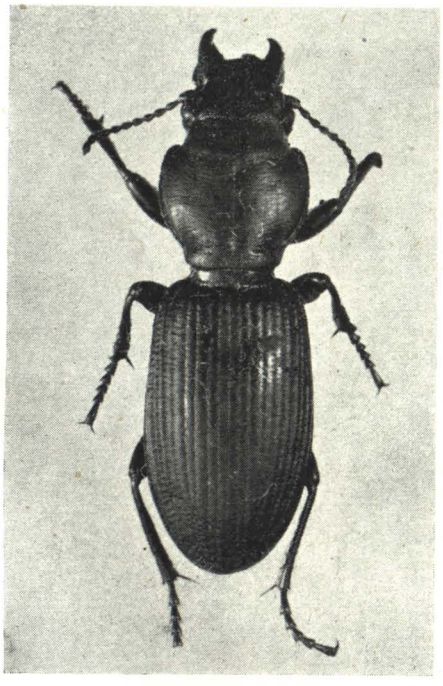

FIG. 96—*Mecodema simplex* Cast.

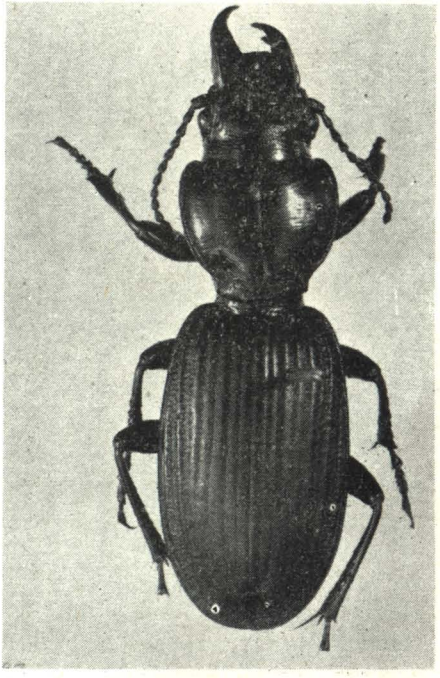

FIG. 97—*Mecodema validum* Broun

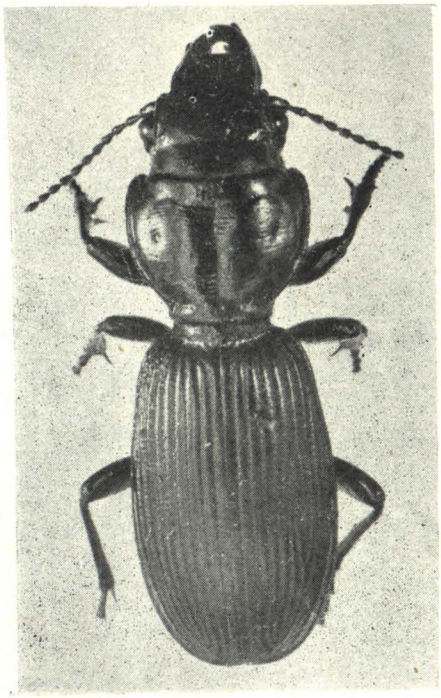

FIG. 98—*Mecodema o'connori* Broun

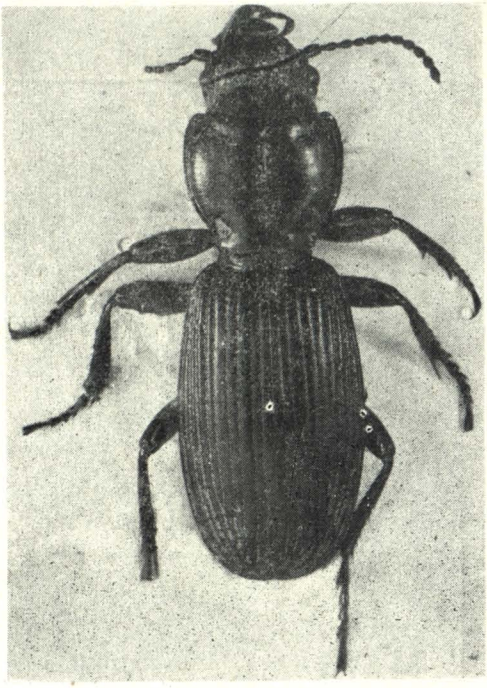

FIG. 99—*Mecodema hector* sp.n.

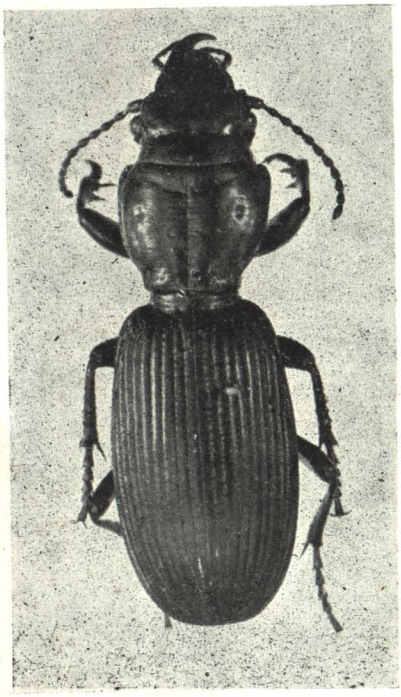

FIG. 100—*Mecodema spinifer* Broun

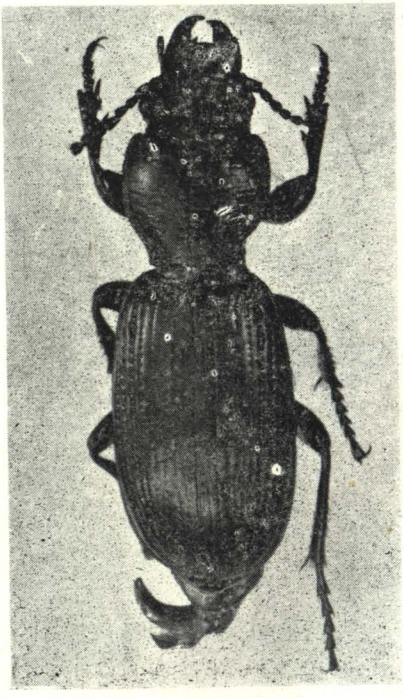

FIG. 101—*Mecodema lucidum* Cast.

FIG. 102—*Mecodema politanum* Broun

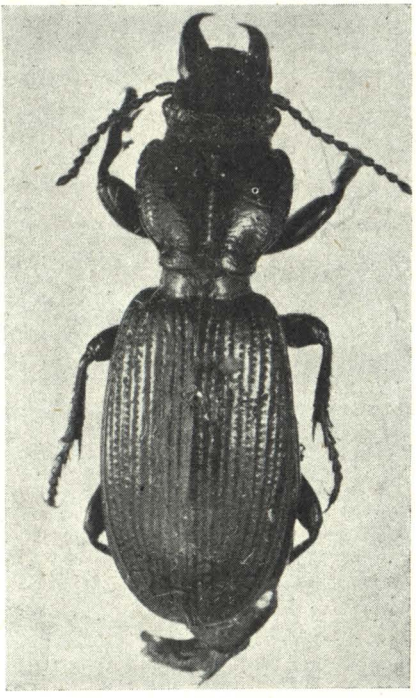

FIG. 103—*Mecodema impressum* Cast.

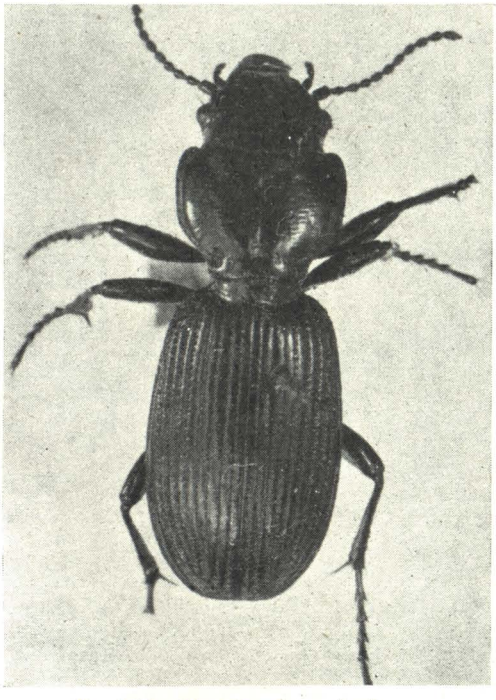

FIG. 104—*Mecodema gourlayi* sp.n.

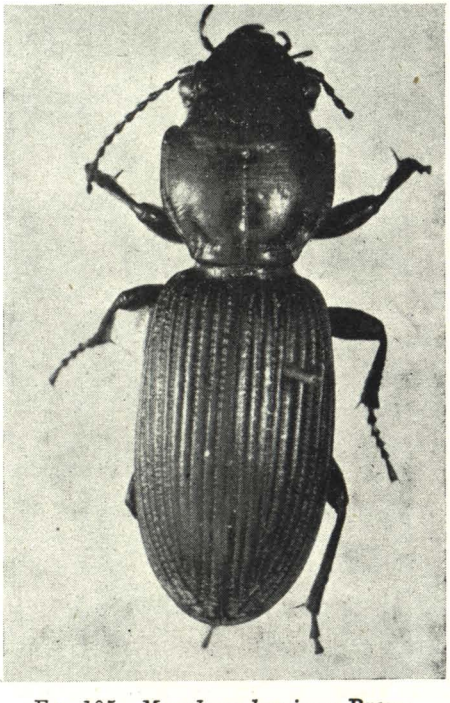

FIG. 105—*Mecodema laeviceps* Broun

FIG. 106—*Mecodema fulgidum* Broun

FIG. 107—*Mecodema rex* sp.n.

FIG. 108—*Mecodema alternans* Cast.

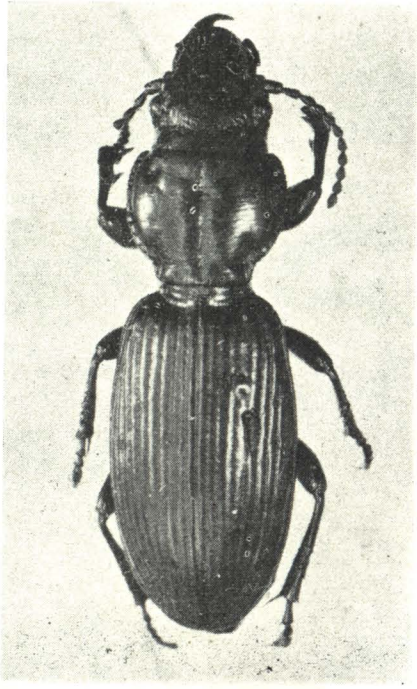

FIG. 109—*Mecodema trailli* Broun

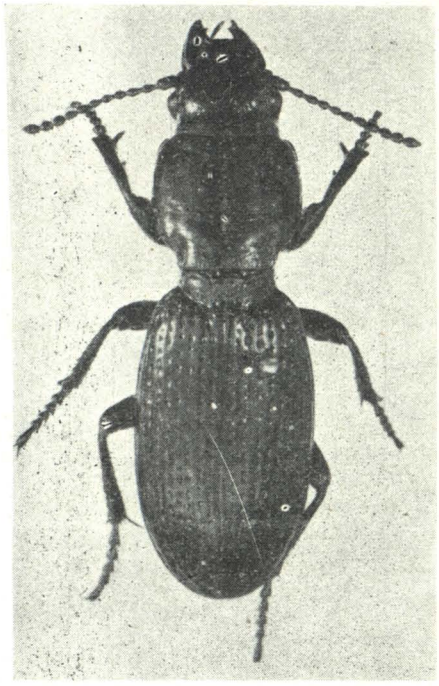

FIG. 110—*Mecodema angustulum* Sharp

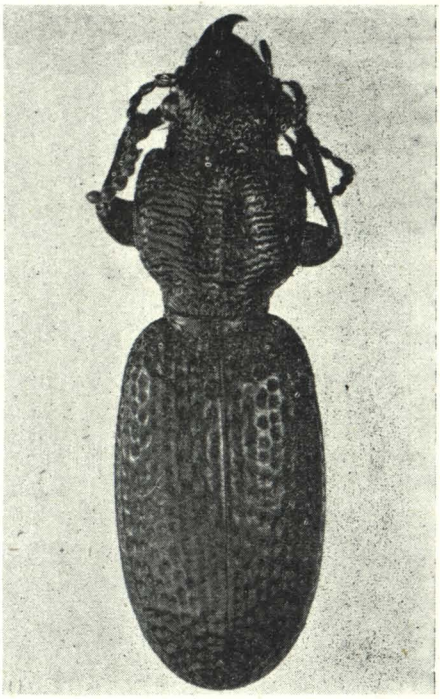

FIG. 111—*Mecodema rugiceps* Sharp

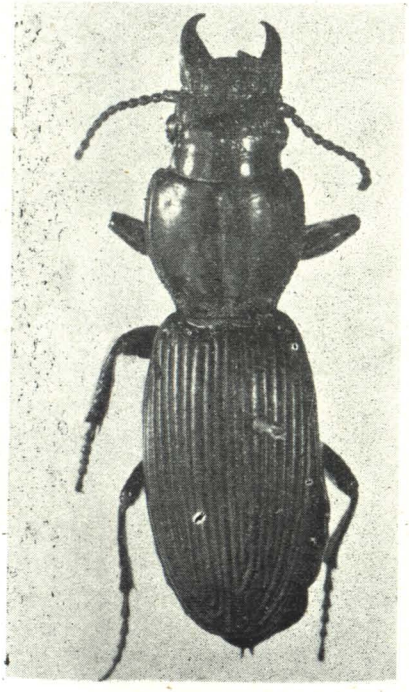

FIG. 112—*Mecodema striatum* Broun

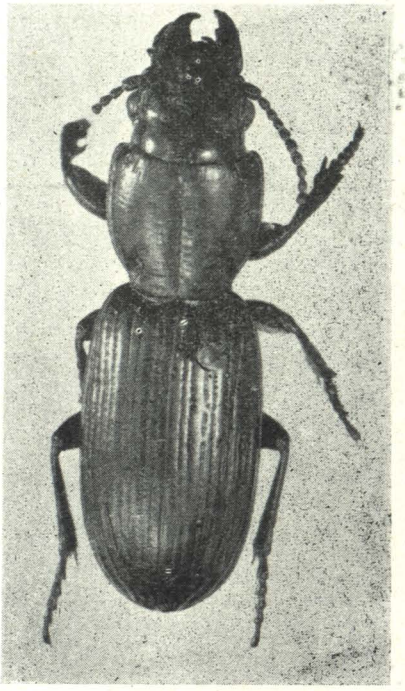

FIG. 113—*Mecodema femorale* Broun

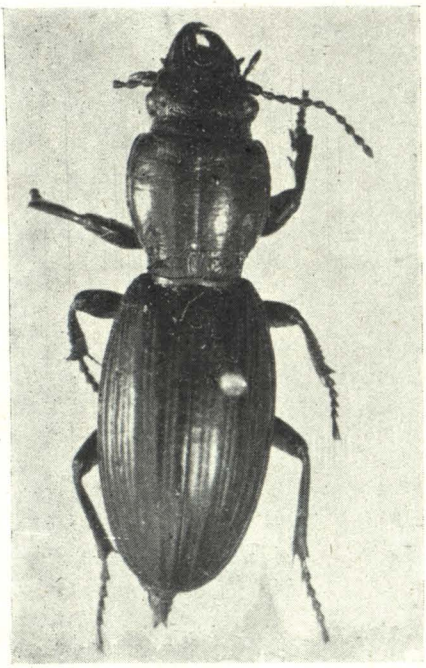

FIG. 114—*Mecodema infimate* Lewis

FIG. 115—*Mecodema minax* sp.n.

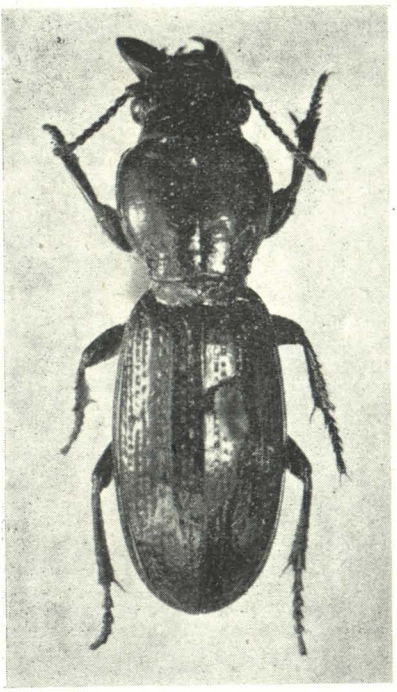

FIG. 116—*Mecodema morio* Cast.

FIG. 117—*Mecodema elongatum* Cast.

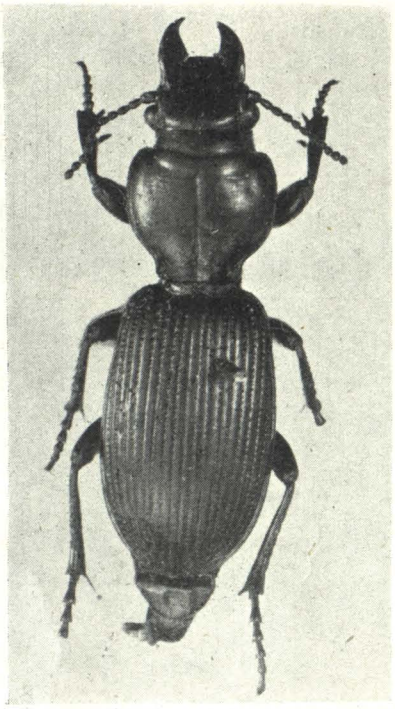

FIG. 118—*Mecodema occiputale* Broun

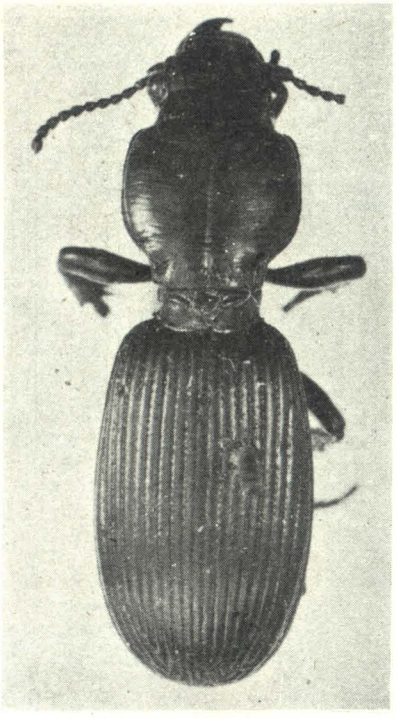

FIG. 119—*Mecodema atrox* sp.n.

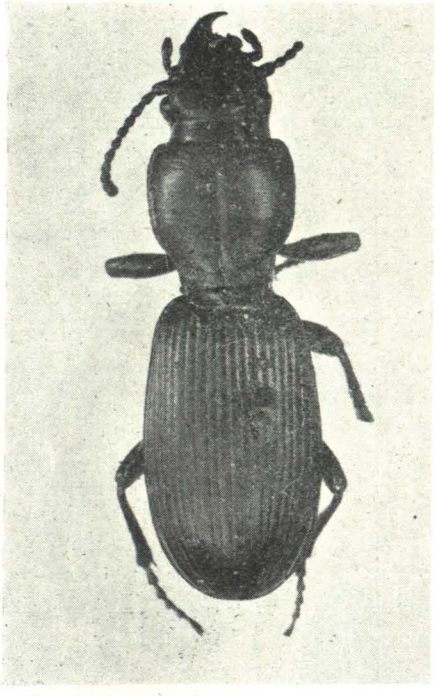

FIG. 120—*Mecodema curvidens* Broun

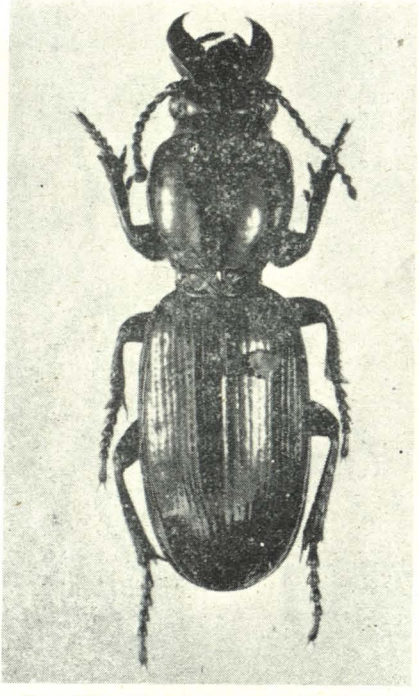

FIG. 121—*Mecodema oregoide* Broun

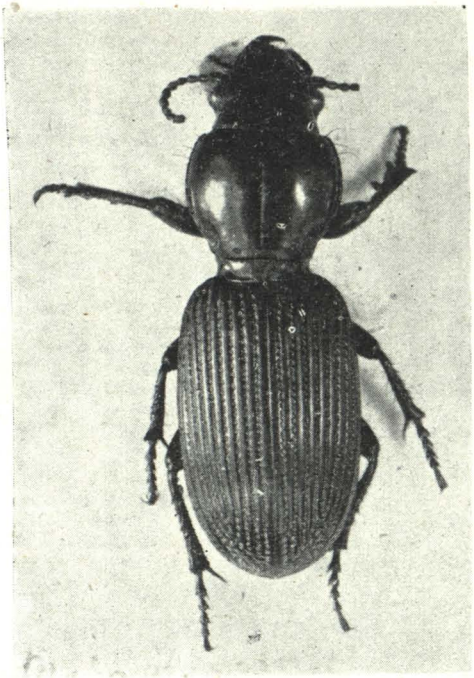

FIG. 122—*Mecodema sulcatum* Sharp

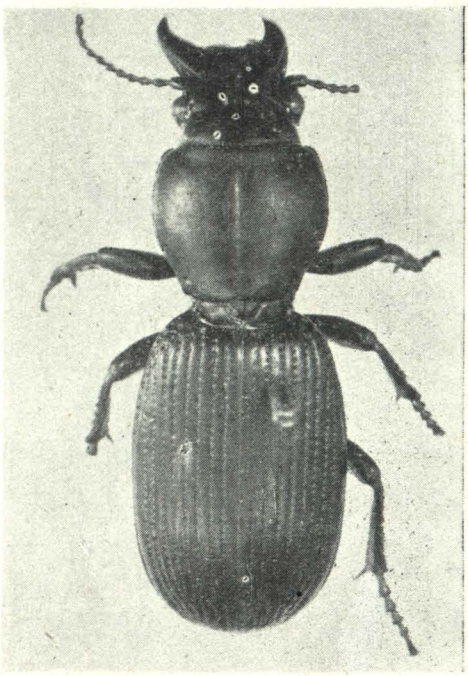

FIG. 123—*Mecodema oblongum* Broun

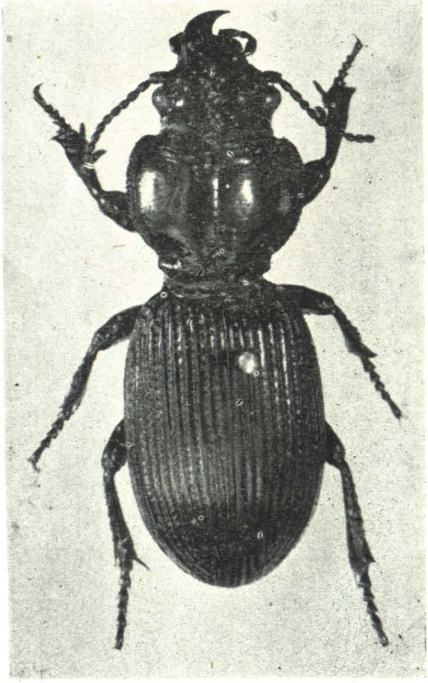

FIG. 124—*Metaglymma monilifer* Bates

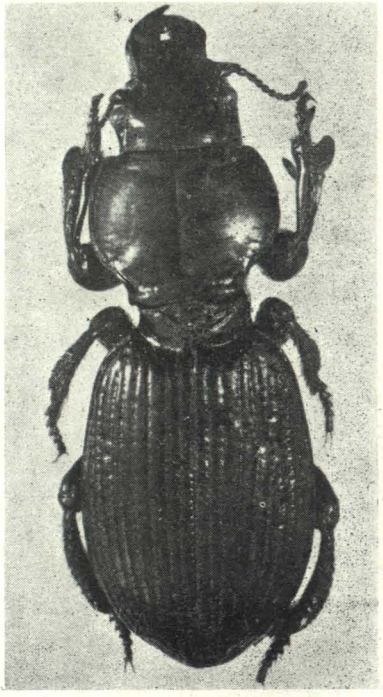

FIG. 125—*Brullea antarctica* Cast.

into irregular lengths by the depressions in which the setiferous punctures are set. *Microsculpture:* absent except in the depressions and wrinkles, where it is faint, isodiametric. *Ventral surface:* prosternum distinctly punctured at the sides, the punctures separated by 1–4 diameters; proepisterna closely punctured, the punctures separated by 1–2 diameters; pronotal epipleurae punctured; mesepisterna closely punctured and wrinkled; mesosternum, sides of the metacoxae and first three abdominal segments faintly punctured.

Type in the Dominion Museum, Wellington.

SOUTH ISLAND. *Otago:* Puysegur (*Sandager*); Te Oneroa; Lake Te Anau, 1 ex.; Hump Ridge, Okaka, 3,500 ft., 28.xii.10 (*A. Philpott*), 1 ex.; Colac Bay, 1 ex.; Tuatapere, nr. Invercargill (*J. H. Lewis*), 1 ex.

15. **Mecodema litoreum*** Broun 1886, M., iv, p. 875.
*Mecodema dissonum** Broun 1914, B., ii, p. 83 (new synonymy).

Figs. 5, 47. *Length:* 20–24 mm. *Head:* frons smooth, or with faint to distinct transverse wrinkles, vertex with only a very slight transverse depression, irregularly punctured and wrinkled. *Pronotum:* disc with faint to distinct transverse wrinkles; apex and base longitudinally wrinkled; with a few faint punctures around the ends of the median groove and near the inner sides of the basal depressions; sides slightly sinuate before the posterior angles which are obtuse and blunt; 9–10 setiferous punctures on each side. *Elytra:* striae fine but distinctly impressed, with very faint but regular puncturation; intervals 1, 3, 5 and 7 twice as wide and more strongly convex than intervals 2, 4, 6 and 8; interval 7 usually interrupted by about six depressions. *Ventral surface:* prosternum faintly to distinctly punctured at the sides; proepisterna faintly to distinctly punctured and wrinkled; mesepisterna distinctly punctured and wrinkled; sides of the metasternum and the metepisterna with a few irregularly scattered punctures; sides of the abdominal sternites faintly to distinctly punctured. *Microsculpture:* faint, isodiametric in the striae, becoming stronger and spreading over the intervals towards the apices of the elytra.

SOUTH ISLAND. *Otago:* Taieri Beach (on sandhills), holotype ♂; Hump Ridge, 2 ♀; Invercargill, 1 ex.

16. **Mecodema rectolineatum** Castelnau 1867, *Notes on Australian Col.*, p. 74; *Trans. R. Soc. Victoria*, viii, 1868, p. 160; Putzeys, *Ann. Mus. Civ. Genova*, iv, 1873, p. 308.
*Mecodema suteri** Broun 1893, M., v, p. 977 (new synonymy).

Figs. 48, 88. *Length:* 20–25 mm. *Head:* clypeus unpunctured; vertex coarsely and irregularly punctured forwards to the level of the middle of the eyes; not or only very slightly depressed. *Pronotum:* ratio (holotype of *M. suteri*, length 25 mm.) 1·0/1·55/1·21/1·21; (paratype, length 24 mm.) 1·0/1·65/1·33/1·35; sides strongly sinuate before the posterior angles which are square but blunt; sparsely and irregularly punctured at apex and base; 6 setiferous punctures on each side. *Elytra:* as in *M. litoreum*, but with striae strongly and regularly punctured, the punctures becoming progressively larger and deeper from striae 1–8; the smaller intervals crossed by small wrinkles which radiate from the punctures, the

wrinkles becoming more numerous towards the apex and spreading over all the intervals. *Ventral surface:* prosternum with a few punctures at the sides; proepisterna coarsely but sparsely punctured, transversely wrinkled near the anterior end; mesepisterna sparsely punctured and transversely wrinkled; the first abdominal segment with a few faint punctures. *Microsculpture:* absent.

Type in the Genoa Museum.

SOUTH ISLAND. *Canterbury:* Mount Cook, near the Hermitage (*Suter*), holotype ♀, paratype ♂ and 1 ex.

17. **Mecodema sculpturatum*** Blanchard 1853, *Voyage au Pole Sud,* p. 35, pl. 2, f. 14; Putzeys, *Ent. Zeit. Stettin,* xxix, 1868, p. 316; Broun, M., 1, p. 8.

Figs. 49, 89. *Length:* 21–26 mm. *Colour:* aeneous-black to black; legs dark-red. *Head:* the whole dorsal surface of the head, including the clypeus, coarsely and irregularly punctured and wrinkled, the spaces between the punctures and wrinkles convex; eyes strongly convex, hemispherical. *Pronotum:* the whole surface punctured and wrinkled like the head; the sides only very slightly sinuate before the posterior angles which are very obtuse and blunt. *Elytra:* intervals 1–6 more or less obliterated by the wrinkles which radiate from the strial punctures; striae 7 and 8 coarsely and regularly punctured, the punctures separated by less than their own width; interval 7 distinct, convex. *Ventral surface:* prosternum coarsely punctured and wrinkled, more densely so at the sides, the puncturation and wrinkling carried on to proepisterna; the mes- and met-epesterna coarsely punctured; sides of the hind coxae with 6–8 coarse punctures; the first and second abdominal segments punctured at the sides; remainder of the abdomen longitudinally wrinkled at the sides, transversely wrinkled in the middle. *Microsculpture:* absent.

Type in the Paris Museum.

SOUTH ISLAND. *Otago:* Mount Maungatua; Catlin's River; Bluff, 31 ex. *Westland:* Otira Gorge, 1 ex.

Mecodema sculpturatum var. **puncticolle*** Broun 1914, B., iii, p. 146.

Fig. 90. *Length:* 23 mm. The *head* and *pronotum* are coarsely and irregularly punctured as in the typical form, but the wrinkling is almost absent, the spaces between the punctures flat; the sides of the pronotum are distinctly sinuate. On the *elytra* also the wrinkling is greatly reduced so that all striae and intervals are clearly distinguishable; striae 1–4 are regularly punctured, the punctures separated by 4–6 diameters; intervals 1, 3, 5, 7 and 9 are convex and smooth in anterior half; intervals 2, 4 and 6 are depressed and wrinkled; intervals 5–8 are progressively more coarsely punctured; intervals 7 and 8 as in the typical form; towards the apex the wrinkling extends over all the intervals. *Ventral surface* punctured as in the typical form, but less strongly wrinkled.

SOUTH ISLAND. *Otago:* Otara, holotype ♀ (*A. Philpott*); Port Chalmers (*J. J. Walker*), 1 ex.; Tuatapere (*A. C. O'Connor*), 1 ex. *Westland:* Otira Gorge, 1 ex.

Mecodema sculpturatum varies a great deal in the degree of wrinkling of the surface, and *M. puncticolle* Broun appears to be an extreme form in the direction of reduction of sculpturation. The male genitalia are the same in typical form and variety.

THE *ducale* GROUP OF SPECIES.

Group characters: outer elytral striae very coarsely punctured; inner striae (1–4) relatively faintly punctured or absent; lateral margins of the pronotum strongly crenulate, strongly sinuate and straight behind the sinuation.

KEY TO THE *ducale* GROUP OF SPECIES

1	The disc of the elytra smooth, striae 1–4 absent or represented by very faint traces; the outer halves of the elytra very coarsely and irregularly punctured (Fig. 91)	18. ***ducale*** **Sharp**
	Elytral striae 1–4 represented by fairly regular rows of stellate punctures; striae 5–8 represented by larger, deeper and more irregularly placed punctures and depressions (Figs. 92 and 93)	2
2 (1)	The punctures of the basal half of stria 7 easily recognisable from those of stria 8; the punctures of the two striae similar in size and depth (Fig. 92); apex of the aedeagus angular (Fig. 51), (North Island)	19. ***crenaticolle*** **Redtenbacher**
	The punctures of the basal half of stria 7 when recognisable much larger and deeper than those of stria 8, but puncturation usually so confused that striae 7 and 8 cannot be distinguished at the base (Fig. 93); apex of the aedeagus rounded (Fig. 52) (South Island)	20. ***crenicolle*** **Castelnau**

Mecodema ducale* Sharp 1886, *Trans. R. Dublin Soc.*, (2), III, p. 358, pl. 12, f. i; Broun, M., v, p. 976.

Figs. 50, 91. *Length:* 26–29 mm. *Colour:* black, with antennae and legs dark-red. *Head:* vertex with slight transverse depression marked by about 20 more-or-less distinct punctures near the middle; frons smooth in the middle, longitudinally wrinkled at the sides. *Pronotum:* median groove strongly impressed; the whole surface marked by close, regularly spaced, transverse wrinkles which are deeper at the sides than near the middle of the pronotum; each side with 8–10 setiferous punctures, rather straight in the anterior half and sharply sinuate before the posterior angles which are square. *Elytra:* the disc marked by faint stellate wrinkles; outer halves of the elytra with very coarse confused punctures and depressions; the convex base of interval 7 bearing a setiferous puncture, recognisable near the shoulder. *Ventral surface:* prosternum unpunctured, with faint transverse wrinkles; pro- and mesepisterna faintly punctured and wrinkled; metepisterna unpunctured; first three abdominal sternites faintly and irregularly punctured. *Microsculpture:* strong, isodiametric over the whole surface of the body.

SOUTH ISLAND. *Westland:* Greymouth (*Helms* 1884), holotype ♀. *Nelson:* Westport, v.1933 (*G. Brittin*); Reefton, i.1934 (*E. Fairburn*).

19. **Mecodema crenaticolle*** Redtenbacher 1867, *Reise Novara*, II, p. 11, pl. 1, f. 6.

*Mecodema rugicolle** Broun 1882, *New Zeal. J. Sci.*, I, p. 215. Hudson, N., p. 32, pl. 1, f. 2 (new synonymy).

*Mecodema lineatum** Broun 1894, A., (6), xiv, p. 303; Lewis, T., xxxiv, 1902, p. 203 (new synonymy).

Figs. 51, 92. *Length:* 22–27 mm., mode 26 mm. *Head:* as in *M. ducale*, but eyes less convex. *Pronotum:* as in *M. ducale*. *Elytra:* striae not impressed, represented by rows of coarse punctures, separated by 2–5 times their diameters; the punctures of some or all striae 1–4 reduced in size near the middle of the disc, the punctures of stria 3 sometimes absent near the middle; the punctures of stria 7 distinguishable from those of stria 8. *Ventral surface:* prosternum unpunctured, faintly wrinkled; proepisterna faintly punctured and wrinkled; mesepisterna transversely wrinkled, the wrinkles faintly punctured; abdominal sternites faintly punctured at the sides, the puncturation becoming fainter towards the apex of the abdomen. *Microsculpture:* strong, isodiametric, in the punctures and depressions of the surface; in some examples the microsculpture spreads over the whole surface of the elytra.

Type in the Vienna Museum.

North Island. *Wellington:* Pipiriki, Raetihi, Wanganui, Rangatana. *Auckland:* Waimarino, Papakura, Tuakau, Taumarunui. *Taranaki:* Mt. Egmont, i.33 (*E. A. Plank*), 1 ex. Sixteen exs., including the types of *M. rugicolle* and *M. lineatum* in the B.M. collections. These types are males and the genitalia are identical.

According to Hudson this is one of the commonest species of *Mecodema*.

I am indebted to Dr. K. Holdhaus for the loan of the type of this species from the collections of the Vienna Museum.

20. **Mecodema crenicolle** Castelnau 1867, *Notes on Australian Coleoptera*, p. 74; *Trans. R. Soc. Victoria*, VII, 1868, p. 160; Putzeys, *Ann. Mus. Civ. Genova*, IV, 1873, p. 310.

*Mecodema venator** Broun 1886, M., iv, p. 817 (ney synonymy).
*Mecodema variolosum** Broun 1903, A., (7), xi, p. 453 (new synonymy).
*Mecodema attenuatum** Broun 1908, A., (8), II, p. 339 (new synonymy).
*Mecodema ventriculum** Broun 1923, B.I., viii, p. 673 (new synonymy).

Figs. 52, 93. *Length:* 22–29 mm., mode 26 mm.

This species is very closely allied to *M. crenaticolle*. In addition to the differences given in the key, *M. crenicolle* is slightly broader and more strongly sculptured.

Type in the Genoa Museum.

South Island. *Nelson:* Wangapeka; Buller River; Mount Owen; Tapawera; Belgrove; Motueka; Pokororo; Gordon's Knob; Mount Cedric; Upper Maitai; Takaka; Kaihoka; Flaxmoor; 22 ex. in all.

North Island. *Auckland:* Rotorua (type of *M. variolosum*). The type locality of *M. crenicolle* Cast. is also Auckland.

In view of the apparent rarity of *M. crenicolle* in the North Island, it would be worth while to study the distribution of the species in detail. It is possible that the North Island records are mistakes, and that the species is in fact restricted to the South Island.

THE *laterale* GROUP OF SPECIES.

Group characters: size large; length 31–36 mm.; form depressed, the lateral margins of the elytral broadly reflexed; all elytral striae distinct, the outer striae more strongly impressed and punctured than the inner striae; elytral intervals dull, with minute transverse, much branched wrinkles; posterior angles of the pronotum sharp, acute. Two species occur in the South Island.

KEY TO THE *laterale* GROUP OF SPECIES.

1 Head, pronotum and elytra of uniform black colour; total number of setiferous punctures on both sides of the pronotum together not more than 12; elytral intervals 5 and 6 equally convex on the disc; the larger spur at the apex of the hind tibia of ⅔ length of the proximal segment of the hind tarsus; the edges of the concave face of the spur not hyaline; the setae of the outer side of the apex of the hind tibia very short and blunt (Fig. 6, aedeagus Fig. 53) .. .. .. 21. *laterale* **Broun**

Head and pronotum black, slightly aeneous, elytra dark-brown in colour; total number of setiferous punctures on both sides of the pronotum together not less than 15; elytral interval 5 depressed, less strongly convex than interval 6 on the disc; the larger spur at the apex of the hind tibia equal in length to the proximal segment of the hind tarsus; the edges of the concave face of the spur are hyaline; the setae of the outer side of the apex of the hind tibia long, slender and sharply pointed (Fig. 94, aedeagus Fig. 54) .. .. 22. *allani* **Fairburn**

21. **Mecodema laterale*** Broun 1917, B., I, v, p. 350.

Figs. 6, 53. *Length:* 31–36 mm. *Colour:* black. *Head:* as in fig. 6; vertex with a few coarse punctures; mentum without setiferous punctures. the submentum with two setiferous punctures on each side. *Pronotum:* 4–6 setiferous punctures on each side; a few obsolescent punctures around the basal depressions and near the apex on each side. *Elytra:* lateral margins broad; striae 1–4 finely impressed and punctured, the punctures separated by 4–6 times their diameter; intervals 5–8 more coarsely punctured, the punctures separated by their own diameter; intervals 1, 3 and 5 very slightly more convex than intervals 2, 4 and 6, interval 7 distinctly convex; intervals dull, covered, with exception of basal half of the sutural interval, with minute much branched strigae; interval 3 distinctly wider than interval 2 throughout and about twice as wide at the base.

SOUTH ISLAND. *Otago:* Hollyford, holotype ♀ and 1 ex.; Routeburn, near Lake Wakatipu, 2-5.i.45 (*E. S. Gourlay*), 7 ex.

22. **Mecodema allani** Fairburn 1945, *Trans. R. Soc. N.Z.*, 74, iv, p. 408, pl. 59.

Figs. 54, 94. *Length:* 32–35 mm. *Colour:* head and pronotum black, slightly aeneous; ventral surface black; elytra dark-brown. In addition to the characters given in the key, this species differs from *M. laterale* Broun in the shape of the elytra, which are broader and more rounded at the sides (greatest width of an example of *M. laterale* of length 33 mm. = 10 mm.; greatest width of an example of *M. allani* of the same length = 11 mm.).

SOUTH ISLAND. *Canterbury:* in a valley between Mt. Horrible and Mt. Misery, near Cass, 2,600 ft., xii.42 (*A. Richardson* and *C. E. Clarke*), 3 ex. *Nelson:* Mt. Cedric, 1.i.39 (*E. S. Gourlay*), 4 ex.

THE *spinifer* GROUP OF SPECIES.

Group characters: outer elytral striae more strongly impressed and punctured than the inner striae; all striae clearly defined; lateral margins of the pronotum smooth or only slightly crenulate, rarely parallel behind the sinuation. Six species occur in the North Island and nine in the South Island.

KEY TO THE *spinifer* GROUP OF SPECIES.

1	Head with vertex always punctured; the punctures sometimes few and obsolescent; proepisterna with at least a few punctures; mesepisterna usually punctured; at least the first abdominal sternite punctured	2
	Head with vertex, proepisterna, mesepisterna and abdominal sternites all unpunctured ..	16
2 (1)	Sides of the pronotum not sinuate in front of the posterior angles (Fig. 33, 95), femora bright red, tibiae and tarsi black	23. *quoinense* Broun
	Sides of the pronotum distinctly or sharply sinuate in front of the posterior angles (Figs. 7–10, 34–39); legs entirely red, dark brown or black	3
3 (2)	Elytra with strong reticulate microsculpture (visible at mag. × 40) continuous along the striae and spreading to cover the intervals at and behind the middle	4
	Elytra without continuous microsculpture along the elytral striae; striae usually without trace of microsculpture, but sometimes with faint microsculpture in the strial punctures ..	8
4 (3)	Head with the transverse depression of the vertex very broad and shallow; vertex with numerous distinct punctures (Fig. 7) ..	5
	Head with the transverse depression of the vertex well marked, clearly visible to the naked eye; vertex usually with only 2 or 3 obsolescent punctures on each side in the transverse depression	6
5 (4)	Head, pronotum and elytra with strong uniform reticulate microsculpture; legs dark brown or black (Fig. 96)	24. *simplex* Castelnau
	Microsculpture of head, pronotum and elytra not uniform; on head and pronotum microsculpture is present only in the wrinkles and punctures; on the elytra microsculpture is absent from the middles of the intervals in the basal quarter; legs red (Figs. 7, 97)	25. *validum* Broun
6 (4)	Pronotum more transverse, ratio max. width/length greater than 1.23; pronotum width usually 9.0 mm. or more (Figs. 36, 98); elytra width usually more than 10.0 mm.; aedeagus Fig. 57, length 28–36 mm.	26. *o'connori* Broun
	Pronotum less transverse, ratio max. width/length less than 1.20; pronotum width less than 9.0 mm. (Fig. 37); elytra less than 10.0 mm.; aedeagus Figs. 58, 59, length 27–32 mm. ..	7
7 (6)	Vertex of the head with the transverse depression marked by numerous punctures; sides of the pronotum curved out in the anterior half (Figs. 37, 99); pro- and mesepisterna distinctly punctured; aedeagus Fig. 58 (South Island) ..	27. *hector* sp.n.
	Vertex of the head with the transverse depression marked by a few obsolescent punctures on each side; sides of the pronotum straight in the anterior half (Fig. 100); pro- and mesepisterna unpunctured; aedeagus Fig. 59 (North Island)	28. *spinifer* Broun

8 (3)	Frons smooth, with no punctures anterior to the level of the middle of the eyes; punctures of the vertex few (less than 20); pronotum smooth, unwrinkled	9
	Frons with at least a few small punctures on the frons anterior to the level of the middle of the eyes; punctures of the vertex numerous (more than 40); pronotum transversely wrinkled ..	11
9 (8)	Length 26–31 mm.; maximum width of the pronotum *ca.* 8.0 mm.; each elytra stria represented by a double row of punctures (Fig. 87)	13. *howitti* Castelnau (see *costellum* group)
	Length 20–25 mm.; maximum width of the pronotum *ca.* 6.0 mm.; each elytra stria represented by a single row of punctures	10
10 (9)	Elytral stria 8 marked by a row of strong punctures; striae 1–5 distinctly impressed and punctured; intervals 5 and 6 slightly convex (Fig. 101, pronotum Fig. 34)	29. *lucidum* Castelnau
	Elytral stria 8 faintly impressed and very faintly and indistinctly punctured; elytral striae 1–5 very faintly impressed and punctured; intervals 5 and 6 quite flat (Fig. 102)	30. *politanum* Broun
11 (8)	Clypeus, frons and disc of pronotum coarsely punctured; elytral intervals covered with wrinkles which radiate from shallow stellate depressions (Fig. 89)	17. *sculpturatum* Blanchard (see *costellum* group)
	Clypeus frons and disc of the pronotum usually unpunctured, at most with a few (< 10 punctures) on clypeus, anterior half of the frons and on the pronotum near the anterior angles; elytral intervals and striae not obscured by wrinkles	12
12 (11)	Elytral intervals 1, 3 and 5 smooth and distinctly more convex than the alternate intervals 2, 4 and 6, which are wrinkled (Fig. 88) ..	16. *rectolineatum* Castelnau (see *costellum* group)
	Elytral intervals 1, 3 and 5 not distinguishable from intervals 2, 4 and 6 in convexity or wrinkling	13
13 (12)	Pronotum smooth, at most with a small group of punctures near the anterior angles; clypeus unpunctured (Fig. 101, pronotum Fig. 34) ..	29. *lucidum* Castelnau
	Pronotum with faint transverse wrinkles, and a few punctures between the basal depressions or puncturation of the pronotum extending from the anterior angles along the sides and around the basal depressions, sometimes extending over the whole of the disc	14
14 (13)	Sides of the pronotum strongly sinuate in front of posterior angles (Figs. 8, 103)	31. *impressum* Castelnau
	Sides of the pronotum only slightly sinuate in front of the posterior angles (Figs. 3, 35) ..	15
15 (14)	Elytral intervals 1–4 flat at the base (Fig. 35)	32. *huttense* Broun
	Elytral intervals 1–4 strongly convex at the base (Fig. 3)	33. *duw* sp.n.
16 (1)	Sides of the pronotum distinctly straight and parallel in the anterior half (Figs. 10, 14, 105)	17
	Sides of the pronotum uniformly curved out in the anterior half (Figs. 106, 107)	19
17 (16)	Pronotum elongate; ratio greatest width/length *ca.* 1.0 (Fig. 14); legs of uniform black colour	60. *pluto* sp.n. (see *curvidens* group)

	Pronotum transverse; ratio greatest width/length more than 1.20; femora dark red, tibiae and tarsi dark brown or black	18
18 (17)	Pronotum more transverse (Fig. 10, 104); ratio greatest width/length more than 1.30; sides of the pronotum strongly sinuate; elytral intervals 1–4 almost flat	34. *gourlayi* sp.n.
	Pronotum less transverse (Figs. 9, 105); ratio greatest width/length less than 1.25; sides of the pronotum only slightly sinuate; elytral intervals distinctly convex on the disc and strongly convex at the base	35. *laevicеps* Broun
19 (16)	Length 23–35 mm.; pronotum with sides more rounded (Figs. 37, 106, 107); femora dark brown or black, about the same colour as the ventral surface of the body; mesepisterna and sometimes proepisterna very faintly and sparsely punctured; apex of the aedeagus rounded (Fig. 64)	20
	Length 22–25 mm.; pronotum with sides relatively straight (Fig. 38); femora red, much paler than the ventral surface of the body; pro- and mesepisterna quite unpunctured; apex of the aedeagus pointed at one side	38. *constrictum* Broun
20 (19)	Each elytral stria represented by a double row of punctures (Fig. 87)	13. *howitti* Castelnau (see *costellum* group)
	Each elytral stria represented by a single row of punctures	21
21 (20)	Length 23–29 mm (Fig. 106); head without transverse depression on the vertex; surface shining, microsculpture absent from the head and the disc of the pronotum and elytra; aedeagus expanded at the apex, Fig. 64 ..	36. *fulgidum* Broun
	Length *ca.* 35 mm. (Fig. 107), head with a distinct transverse groove on the vertex; surface rather dull, head, pronotum and elytra with distinct microsculpture; aedeagus tapered to the apex, Fig. 66	37. *rew* sp.n.

23. **Mecodema quoinense*** Broun 1912, T., XLIV, p. 384.

Figs. 33, 95. *Length:* 25 mm. *Head:* frons with faint transverse wrinkles; vertex with a shallow transverse depression, finely punctured. *Pronotum:* disc marked by faint, regularly spaced transverse wrinkles, faintly punctured near the apical and basal margins; sides not sinuate (Fig. 33). *Elytra:* striae 1–5 finely and distinctly impressed, very finely punctured; outer striae increasingly strongly impressed and punctured towards the outside; intervals 1, 3 and 5 wider and more convex than intervals 2 and 4; intervals 3 and 5 twice as wide as interval 4; outer intervals narrower but distinctly convex; interval 5 divided in the apical half (left hand side in type) or two-thirds (right hand side) and at the base, by a supernumerary stria. *Legs:* black except femora, which are bright red. *Microsculpture:* apparently present only along the striae, but the surface of the type specimen is much scratched and dull.

North Island. *Wellington:* Mt. Quoin, Tararua Range, 3,900 ft. (*A. O'Connor*), holotype and 1 ex.

24. **Mecodema simplex** Castelnau 1867, *Notes on Australian Coleoptera,* p. 74; *Trans. R. Soc. Victoria,* VIII, 1868, p. 160; Putzeys, *Ann. Mus. Civ. Genova,* IV, 1873, p. 311.

*Mecodema acuductum** Broun 1908, A., (8), II, p. 335; Hudson, N., p. 32 (new synonymy).

*Mecodema bryobium** Broun 1912. T., xliv, p. 383; Hudson, N., p. 32 (new synonymy).

*Mecodema arcuatum** Broun 1912, T., xliv, p. 385 (new synonymy).

Figs. 55, 96. *Length:* 23–27 mm. *Head:* clypeus with 7 strong longitudinal grooves, head otherwise as in *M. quoinense*. *Pronotum:* as in *M. quoinense*, but sides distinctly sinuate before the posterior angles and the transverse grooves slightly stronger. *Elytra:* striae 1–5 distinctly impressed, finely and regularly punctured; outer striae progressively more strongly impressed and punctured towards the outside; intervals 1–5 flat or slightly convex; outer intervals distinctly convex, strongly so at the shoulder. *Ventral surface:* the sides of the prosternum and mesosternum, the proepisterna, the mesepisterna, the sides of abdominal sternites 1–5 and the sides of the metacoxae punctured. *Microsculpture:* head, pronotum and elytra with strong isodiametric microsculpture.

Type in the Genoa Museum.

NORTH ISLAND. *Auckland* (type of *M. simplex*). *Wellington:* Mount Holdsworth, Tararua, holotype ♀ of *M. acuductum* and 2 ex.; Silverstream, holotype of *M. bryobium*, 2 ex.; Lowry Bay, 19.x.36 (*A. C. O'Connor*), 1 ex.; Martinborough, holotype of *M. arcuatum*; Haurangi Range, 2,000 ft., 9.v.39 (*A. C. O'Connor*), 1 ex. *Hawke's Bay:* Mangatoro, 3.xii.41 (*M. Laird*), 1 ex.; Dannevirke, 9.xi.41 (*M. Laird*), 1 ex.

25. **Mecodema validum*** Broun 1923, B.1, viii, p. 670.

Figs. 7, 56, 97. *Length:* 30–36 mm. *Colour:* black, with antennae and femora bright reddish-brown; tibiae darker than the femora except near their apices; coxae and tarsi dark-brown to black; trochanters bright reddish-brown. *Head:* frons with a few faint transverse wrinkles, unpunctured, vertex with a shallow transverse depression, closely but faintly punctured. *Pronotum:* median line rather faintly impressed in the middle, strongly impressed at apex and base; surface marked by faint, closely and regularly spaced transverse wrinkles. *Elytra:* interval 2 about half as wide as interval 3; interval 6 half as wide as interval 5; intervals 1–5 very slightly convex on the disc, distinctly convex at the base; interval 6 depressed throughout; interval 7 very strongly convex; striae 1–4 faintly impressed, regularly punctured, the punctures separated by 2–3 diameters; intervals 5–8 with larger and deeper punctures; interval 9 strongly convex like interval 7, but disappears in the apical and basal quarters; elytra dull, the intervals covered, except near the base, with much branched strigae which radiate from the strial punctures. *Ventral surface:* prosternum with a few faint, widely scattered punctures; proepisterna distinctly but rather irregularly punctured; mesepisterna strongly punctured and wrinkled; abdominal sternites 1–3 with a few faint punctures at the sides. *Microsculpture:* head and pronotum with reticulate microsculpture only in the punctures and wrinkles; elytra with strong isodiametric microsculpture around the strial punctures and spreading right across the intervals in the apical half.

NORTH ISLAND. Ohakune, holotype ♀; Mt. Ruapehu, 2.1.32 (*E. Fairburn*), 1 ♀; Ohakune Mountain Track, 2.1.32 (*E. Fairburn*), 2 ♂♂.

26. **Mecodema o'connori*** Broun 1912, T., XLIV, p. 382; Hudson, N., p. 32.

Figs. 36, 57, 98. *Length:* 28–36 mm. *Head:* frons smooth unpunctured, sometimes with one or two faint transverse wrinkles; vertex with a distinct transverse groove marked by a few obsolescent punctures. *Pronotum:* shape as in Fig. 36, the surface marked by long transverse wrinkles which are regularly but closely spaced. *Elytra:* striae distinctly impressed and punctured, the punctures separated by 1–2 diameters, the punctures become progressively larger from striae 1–8; intervals 1–5 very slightly convex on the disc, more strongly convex at the base; outer intervals distinctly convex throughout; the intervals are marked by minute branching strigae which become more numerous towards the apex. *Ventral surface:* prosternum unpunctured, or with a few faint punctures around the coxal cavities; proepisterna faintly punctured; mesepisterna distinctly punctured, the punctures separated by 1–2 diameters; metacoxae unpunctured in the lateral angles; abdominal sternites 1–4 faintly punctured at the sides. *Microsculpture:* strong, isodiametric in the elytral striae, spreading across the intervals in the apical half.

North Island. *Wellington:* Levin (under logs), holotype, paratype, 1 ex., 21.i.38 (*A. Richardson*); Mt. Ruapehu, 4,000 ft., 1.22 (*G. V. Hudson*), 1 ex.

27. **Mecodema hector*** sp.n.

Figs. 37, 58, 99. *Length:* 27·5 mm. *Colour:* black, including legs and antennae. *Head:* frons slightly wrinkled longitudinally at the sides; vertex with a broad, very shallow transverse depression marked by numerous punctures; a group of 4 setae rises from the supraocular puncture on each side and a single seta arises from a puncture in the transverse depression of the vertex on each side (probably an individual variation, the seta having become detached from the supraocular group during development). *Pronotum:* ratio 1·0/1·65/1·30/·140 (holotype), the sides uniformly curved out in the anterior two-thirds, slightly sinuate behind; the posterior angles very obtuse; each lateral margin with 8–10 setiferous punctures. *Elytra:* intervals 1–6 slightly convex on the disc, and quite strongly convex at the base; intervals 7 and 8 narrower than intervals 1–5 and strongly convex; striae distinctly impressed and punctured, the punctures separated by 2–3 times their own width on striae 1–5, and by 1–2 times their own width on the outer striae. *Ventral surface:* pro- and mes-episterna distinctly punctured; prosternum faintly and sparsely punctured at the sides; the two basal abdominal sternites faintly punctured. *Microsculpture:* distinct, isodiametric, on head, pronotum and elytra.

The characters which distinguish this from related species are given in the key.

South Island. *Otago:* Mount Hector, 1910 (*H. W. S.*), holotype ♂ in the Dominion Museum.

28. **Mecodema spinifer*** Broun 1880, M., i, p. 10.

*Mecodema scitulum** Broun 1894, A., (6), xiv, p. 302 (new synonymy).

Figs. 59, 100. *Length:* 28–32 mm. *Head:* the transverse depression of the vertex has 2–10 punctures on each side. *Pronotum:* markedly straight-sided in the anterior half, with a long sinuation

behind; disc with faint transverse wrinkles; unpunctured, or at most with a few obsolescent punctures on the inner side of the basal depressions. *Elytra:* striae strongly impressed and distinctly punctured; punctures of striae 7 and 8 larger and deeper than those of striae 1–6; intervals 1–6 moderately convex; intervals 7–9 strongly convex. *Ventral surface:* abdominal sternites 1 and 2 faintly punctured at the sides; remainder of ventral surface smooth, unpunctured. *Microsculpture:* faint, only in the wrinkles and transverse depression of the head; distinct over the whole of the surface of the pronotum, stronger in the basal depressions; distinct along the elytral striae, spreading farther across the intervals towards the middle until in the apical half the intervals are covered with strong microsculpture.

NORTH ISLAND. *Auckland:* Waitakere, holotype of *M. spinifer* and 3 ex.; Kara, Whangarei, 27.xi.26 (*E. Fairburn*), 2 ex., 7.ix.29 (*E. Fairburn*), 2 ex.; Kamo Mt., Whangarei, 12.vi.26 (*E. Fairburn*), 1 ex.; Kaikohe, Bay of Islands, 15.x.38 (*R. Cumber*), 1 ex.; Nihotupu, 1 ex. *Wellington:* Levin, Wellington, 21.i.38 (*A. Richardson*), 1 ex. *Hawke's Bay:* N. Wairoa, holotype of *M. scitulum;* Dannevirke, 8.xi.40, under logs (*M. Laird*), 1 ex.; 3.xii.41, 1,000 ft., 2 ex.

29. **Mecodema lucidum** Castelnau 1867, *Notes on Australian Coleoptera,* p. 74; *Trans. R. Soc. Victoria,* VIII, 1868, p. 160; Putzeys, *Ann. Mus. Civ. Genova,* IV, 1873, p. 309.

*Mecodema laevicolle** Broun 1912, T., xliv, p. 384 (new synonymy).
*Mesodema ambiguum** Broun 1915, B., iv, p. 272 (new synonymy).
*Mecodema latulum** Broun 1917, B., v, p. 355 (new synonymy).
*Mecodema affinum** Broun 1917, B., v, p. 355 (new synonymy).
*Mecodema indiscretum** Broun 1917, B., v, p. 356 (new synonymy).
*Mecodema clarkei** Broun 1926, T., lvi, p. 442 (new synonymy).

Figs. 34, 60, 101. *Length:* 21–25 mm. Closely allied to *M. impressum* Cast., from which it is distinguished by its reduced sculpture and the shape of the apex of the aedeagus. Since the two appear to share some localities, it is possible that they are merely extremes of a variable species, but until intermediate forms are found I consider it better to regard them as distinct. The differences given by Broun for the purpose of distinguishing the species synonymised above are certainly within the limits of individual variation.

Type in the Genoa Museum.

SOUTH ISLAND. *Otago:* Mountains near Lake Wakatipu; Bold Peak, holotype ♂ of *laevicolle,* 1.45 (*E. S. Gourlay*), 24 ex.; Ben Lomond, 4,000 ft., holotype ♀ of *ambiguum* and holotype ♂ of *latulum;* Mt. Dick, 2,500 ft., holotype ♀ of *affinum;* Mt. Earnslaw, holotype ♂ of *indiscretum;* Lake Wakatipu, 2 ex. (*G. V. H.*); Stone Peak, Richardson Mts., 1 ex. *Canterbury:* Old Man Peak (*A. C. O'Connor*), 1 ex.

30. **Mecodema politanum*** Broun 1917, B.1, V, p. 352.

Fig. 102. *Length:* 21–24 mm. *Head:* smooth, unwrinkled; vertex without a transverse depression, with a few distinct punctures on each side at the level of the hind margin of the eyes. *Pronotum:* smooth, with hardly a trace of transverse wrinkling; median line faintly impressed, more strongly so at the ends; a few very faint punctures near the anterior margin on each side and around the basal depressions; sides strongly sinuate in front of the posterior angles which are slightly

recurved but square and sharp. *Elytra:* striae 1–6 and 8 very faintly impressed and punctured; stria 7 more strongly impressed and distinctly punctured; intervals 1–6 quite flat throughout; intervals 7, 8 and 9 distinctly convex; interval 7 bearing 2 or 3 setiferous punctures which are visible to the naked eye. *Ventral surface:* prosternum very faintly punctured; proepisterna and mesepisterna faintly to distinctly punctured; sides of the metasternum, metacoxae and abdominal sternites 1–3 bearing a few faint punctures. *Microsculpture:* absent, except in the basal depressions of the pronotum and on the intervals near the apex of the elytra.

SOUTH ISLAND. *Otago:* Mountains near Lake Wakatipu, 5 ex.; Minaret Peaks, W. of Lake Wanaka, 30.xii.33 (*C. E. Clarke*), 1 ex.

The apex of the aedeagus of this species is identical in shape with that in *M. lucidum* Cast. This is the extreme of the *impressum-lucidum* series, in the direction of reduction of sculpture. When longer series of *M. lucidum* are examined it is quite probable that a continuous series will be found connecting *M. lucidum* to *M. politanum,* so that the latter will become a synonym.

31. **Mecodema impressum** Castelnau 1867. *Notes on Australian Coleoptera,* p. 75; *Trans. R. Soc. Victoria,* VIII, 1868, p. 159; Putzeys, *Ann. Mus. Civ. Genova,* IV, 1873, p. 308.
*Mecodema mutabile** Broun 1917, B.I., v, p. 357 (new synonymy).

Figs. 8, 61, 103. *Length:* 19–27 mm. *Head:* vertex with a shallow transverse depression, closely punctured; the frons with two or three longitudinal wrinkles above each eye, irregularly punctured, the density of puncturation varying considerably; clypeus usually marked by a few punctures. *Pronotum:* disc marked by faint transverse wrinkles; faintly or distinctly punctured near the anterior margin, the punctures always distinct near the anterior angles; puncturation always extending down the sides of the pronotum, sometimes with the whole disc punctured. *Elytra:* striae distinctly impressed and strongly punctured, the punctures increasing in size and depth from striae 1–8; intervals 1–5 moderately convex, intervals 6–9 quite strongly convex; the intervals usually traversed by transverse strigae which become more numerous towards the apex. *Ventral surface:* prosternum and mesosternum distinctly but sparsely punctured; proepisterna and mesepisterna closely and distinctly punctured; metasternum and metacoxae with a few distinct punctures at the sides; abdominal sternites closely but faintly punctured at the sides. *Microsculpture:* absent from head and pronotum except in the punctures and depressions of the surface; microsculpture strong, isodiametric, in the elytral striae.

Type in the Genoa Museum.

SOUTH ISLAND. *Otago:* Mountains around Lake Wakatipu; Mt. Earnslaw, holotype ♂ of *M. mutabile,* 1 paratype and 1 ex.; Mt. Dick, 3 ex.; Mt. Alfred, 2 ex.; Staircase, 1 ex.; Ben Lomond, 2 ex.; Hump Ridge, 1 ex.; Mt. Cupola, 3,500 ft., nr. Lumsden, 1 ex.; Bold Peak, 3,000–3,500 ft., 9–11.iii.43 (*J. T. Salmon*), 1 ex.; Otaraia, xii.18, 2 ex.

32. **Mecodema huttense*** Broun 1915, B., iv, p. 270.

Figs. 35, 62. *Length:* 21–26 mm. This species is very closely allied to *M. impressum* Cast., from which it is distinguished by the shape of the pronotum and the less deeply impressed elytral striae and the

less convex intervals; intervals 1–4 are flat or very slightly convex, and striae 1–4 are only faintly impressed and punctured.

SOUTH ISLAND. *Canterbury:* Mount Hutt, nr. Rakaia Gorge, holotype ♀ (length 21 mm.); Mount Algidus (*T. Hall*), 1 ♂, 2 ♀ ♀.

33. **Mecodema dux*** sp.n.

Figs. 3, 63. *Length:* 18–22 mm. *Colour:* head, pronotum and elytra black, slightly aeneous; antennae and legs dark reddish-brown to black. *Head:* frons with a few short wrinkles; vertex with a slight transverse depression, marked by about 20 coarse punctures distributed across the full width of the head, and rather more smaller punctures grouped near the middle. *Pronotum:* each side with 7 or 8 setiferous punctures; median line distinctly impressed, almost reaching the base; rather coarsely punctured and wrinkled near the anterior margin, base between the lateral depressions with a few coarse punctures; disc with moderately distinct transverse wrinkles. *Elytra:* shoulders fairly distinct; striae distinctly impressed, faintly punctured except striae 6, 7 and 8, which are strongly impressed, coarsely punctured in part; intervals distinctly convex on the disc, strongly convex at the base; intervals 7 and 8 are about half as wide as intervals 1–3 and much more strongly convex. *Ventral surface:* prosternum unpunctured; proepisterna coarsely punctured; mesepisterna coarsely punctured and wrinkled; abdominal sternites irregularly wrinkled, the 2nd sternite with a few punctures at each side. Microsculpture of the dorsal surface obsolete except in the lateral depressions of pronotum and the punctures of the elytral striae. Surface shining.

NORTH ISLAND. *Auckland:* Oio, Taumarunui, 20.i.36 (*R. Gardner*), holotype ♂ and paratype. *Hawke's Bay:* Waipawa, 21.vi.34 (*G. S. Snedden*), 1 paratype.

34. **Mecodema gourlayi*** sp.n.

Figs. 10, 104. *Length:* 24 mm. *Colour:* head, pronotum and elytra black; antennae uniform reddish-brown; procoxae, mesocoxae and all trochanters and femora bright red; tibiae and tarsi dark brown; metacoxae black with the postero-lateral concave face red; ventral surface otherwise black; pronotal epipleurae black, elytral epipleurae bright red. *Head:* smooth and shining, with a very slight transverse depression at the vertex; clypeus with a longitudinal wrinkle in the middle and two at each side; ventral surface and mouthparts normal. *Pronotum:* with 7 mm. each side with 8 or 9 setiferous punctures; surface smooth, shining, unpunctured, with very slight traces of transverse wrinkling; median line strongly impressed at anterior and posterior ends, only faintly impressed in middle. *Elytra:* length 14 mm., width 8 mm., striae strongly impressed; striae 1–4 distinctly punctured, the punctures separated by 3 or 4 diameters; outer striae very strongly punctured, these punctures pit-like and separated by their own diameter or less; intervals 1–4 flat, the outer intervals becoming increasingly convex. Surface shining, microsculpture distinct, reticulate only in the punctures of the striae depressions of the head and pronotum. *Ventral surface:* unpunctured, the metacoxae each with a single setiferous puncture near the middle of the anterior margin.

The unique type of the species was sent to me by Mr. E. S. Gourlay. It unfortunately bears no locality label. I have established the species on this rather inadequate material only because the specimen is undoubtedly taken in New Zealand and I wish to make the revision as complete as possible. The characters distinguishing this from related species are given in the key.

Type in the collection of Mr. E. S. Gourlay.

35. **Mecodema laeviceps*** Broun 1904, A., (7), XIV, p. 41.

Figs. 9, 105. *Length:* 27·0–28·5 mm. *Head:* smooth, unpunctured; with 3 very faint wrinkles on each side; transverse depression of the vertex broad and very shallow. *Pronotum:* rather straight sided in the anterior half (Fig. 9), slightly sinuate behind, posterior angles blunt and obtuse; disc with very faint transverse wrinkles which are more deeply impressed at the sides. *Elytra:* intervals 1–5 moderately convex, intervals 6, 7 and 8 strongly convex; interval 9 strongly convex in the apical half; intervals with faint transverse unbranched strigae originating from the striae and extending to the middle of the interval. *Ventral surface:* smooth, unpunctured. *Legs:* posterior femora with 3 setiferous punctures on the posterior face instead of the usual one. *Microsculpture:* strong, isodiametric in the lateral channels of the pronotum and elytra, and in the elytral striae, spreading to cover the intervals in the posterior half.

South Island. *Otago:* Ida Valley, holotype ♀ and 1 ♀ ex.; Mount Teviot, 19.xi.44 (*R. R. Ford*), 1 ex.

36. **Mecodema fulgidum*** Broun 1881, M., ii, p. 653.

*Mecodema halli** Broun 1915, B.1, iv, p. 270 (new synonymy).
*Mecodema antennale** Broun 1923, B.1, viii, p. 672 (new synonymy).
*Mecodema simulans** Hudson 1934, N., p. 32 (new synonymy).

Figs. 39, 64, 106. *Length:* 23–29 mm. *Head:* rather flat, smooth, unwrinkled and unpunctured. *Pronotum:* smooth, unwrinkled and unpunctured; sides slightly sinuate in front of the posterior angles which are obtuse. *Elytra:* shoulders reduced, giving the elytra an ovoid outline; intervals 1–4 flat, or slightly convex on the disc, distinctly convex at the base; intervals 5–8 distinctly convex, striae 1–5 moderately impressed, and very faintly punctured on the disc, but strongly impressed at the base; outer striae strongly impressed; striae 7 and 8 usually quite distinctly punctured. *Ventral surface:* prosternum unpunctured; proepisterna very faintly and sparsely punctured; mesepisterna faintly to distinctly punctured; metasternum, coxae and abdomen unpunctured. *Microsculpture:* absent, except in the basal depressions of the pronotum and along the elytral striae, from which it spreads to cover the intervals near the apex.

South Island. *Nelson:* Mountains near Nelson (*T. F. Cheeseman*); Rainbow (*Stella Hudson*); Balloon Hut, 4,300 ft., 18.ii.33 (*E. S. Gourlay*); Gordon's Knob, 4,500 ft.; Mount Cedric, 4,500 ft., 1.i.39 (*E. S. Gourlay*); Paradise Peak, 4,500 ft., 6.xi.38 (*E. S. Gourlay*). *Canterbury:* Broken River; Mount Hutt, near Methven; Mount Peel, 5,300 ft., 7.i.30 (*E. Fairburn*); Porter's Pass, 24.ii.12; Hanmer, 1907 (*Lewis*). *Marlborough:* Langridge, Awatere River, 23.ii.16, holotype ♂ and 34 ex.; Puhi-puhi, Kaikoura.

37. **Mecodema rex*** sp.n.

Figs. 66, 107. *Length:* 35 mm. *Colour:* black, with the exception of the palpi, which are brown. *Head:* frons unpunctured, with a few longitudinal wrinkles at each side; eyes very prominent, hemispherical; the transverse depression of the vertex distinctly impressed, unpunctured; submentum with two setiferous punctures on each side. *Pronotum:* ratio base width/max. width/apex width/middle length = 1·0/1·60/1·25/1·25; max. width 8·0 mm.; each lateral margin with 7 or 8 setiferous punctures; lateral margins slightly crenulate; surface with faint transverse wrinkles, without trace of puncturation; a large shallow depression present on each side at the outer ends of the slight anterior transverse depression; sides moderately curved out in the anterior half, with a long sinuation before the posterior angles which are obtuse and blunt. *Elytra:* intervals 1–4 slightly convex, outer intervals more strongly convex; striae distinctly impressed and finely punctured, the punctures separated by 3–5 times their own diameter; striae 7 and 8 more strongly punctured; intervals 1, 2, 6, 7 and 8 of about the same width; intervals 3, 4 and 5 approximately equal in width, distinctly wider than the other intervals. *Ventral surface:* smooth, unpunctured, with exception of the mesepisterna, which are transversely wrinkled and faintly and sparsely punctured. Metacoxae without setiferous punctures. *Microsculpture:* head, pronotum and elytra covered with distinct to strong isodiametric microsculpture.

SOUTH ISLAND. *Southland:* Tuatapere (*A. C. O'Connor*), holotype ♂ in the Dominion Museum, Wellington. Paratype in the British Museum.

To the naked eye this species closely resembles *M. o'connori* Broun, on account of the similar size, prominent eyes, shape of pronotum and elytra and the degree of prominence of the elytral striae and intervals. *M. o'connori,* however, has the vertex punctured, and intervals 7 and 8 are narrower and more convex than the other intervals.

38. **Mecodema constrictum*** Broun 1881, M., ii, p. 653.
*Mecodema cognatum** Broun 1908, A., (8), II, p. 336 (new synonymy).
*Mecodema cassense** Broun 1923, B., viii, p. 671 (new synonymy).

Figs. 38, 65. *Length:* 22–25 mm. Like *M. fulgidum* in the smooth, unpunctured head and pronotum and in the sculpturation of the elytra. *M. constrictum* differs in having the sides of the pronotum less strongly curved, in having the pro- and mes-epimera unpunctured, in the shape of the aedeagus and the colour of the femora.

SOUTH ISLAND. *Canterbury:* Castle Hill, W. Coast Road (*J. D. Enys*); Cass; Broken River, tributary of R. Waimakariri, 3 ex.

THE *alternans* GROUP OF SPECIES.

Group characters: All elytral striae equally impressed, punctured, or impressed and punctured; the inner and outer striae equally distinct; length more than 17 mm.; the vertex of the head punctured. Sixteen species, of which two occur in the North Island.

KEY TO THE *alternans* GROUP OF SPECIES.

1 Posterior coxae with a large puncture close to the posterior outer margin 2
Posterior coxae without a puncture near the posterior outer margin 15

2 (1) Length 21–32 mm.; striae uniformly and continuously impressed; faintly and finely punctured (Figs. 108, 109) 3

Length less than 22 mm.; striae usually coarsely punctured, not uniformly and continuously impressed (Figs. 4, 11–13, 16–19, 110–111) .. 5

3 (2) Length over 28 mm.; intervals strongly convex, sides of the pronotum rather straight in the anterior half (Fig. 41); surface shining, microsculpture absent in the middle of each of the wider elytral intervals; pronotum unpunctured; (The Snares) .. .. 39. *hudsoni* Broun

Length less than 30 mm.; if over 25 mm. long, then with surface dull due to strong microsculpture; intervals slightly to moderately convex; sides of the pronotum curved out in the anterior half (Fig. 40); pronotum punctured on the inner sides of the basal depressions; (Chatham I. and S. Island of New Zealand) 4

4 (3) Length 21–25 mm.; surface shining; microsculpture absent except along the elytral striae and on the intervals near the apex (Fig. 108); (Otago and Chatham I.) .. .. 40. *alternans* Castelnau

Length 25–30 mm.; surface dull, microsculpture distinct on head, pronotum and elytra (Fig. 109); (Stewart I. and Southland) .. .. 41. *trailli* Broun

5 (2) Length 17–21 mm.; all femora and trochanters and usually the pro- and meso-coxae bright red; antennae reddish 6

Length 15–21 mm.; antennae and legs dark reddish-brown or black 8

6 (5) Sides of the pronotum not, or only very slightly, sinuate in front of the posterior angles which are very obtuse and rounded (Fig. 4); pronotum smooth and shining, unpunctured; punctures of the elytral striae represented by faint longitudinal impressed lines .. .. . 42. *proximus* sp.n.

Sides of the pronotum with well-marked sinuations in front of the posterior angles which are square and rounded at their apices (Fig. 17); pronotum usually with distinct transverse wrinkles and at least one or two punctures at the base near the lateral depressions; punctures of the elytral striae strongly impressed and usually separate .. 7

7 (6) Pronotum with strong transverse wrinkles which are visible to the naked eye (Fig. 17), and a few punctures between the wrinkles near the base; head with many strong punctures which sometimes extend to the anterior margin of the frons and on to the clypeus; microsculpture visible in the punctures of the elytra; (Greymouth and Westport) .. .. .. 43. *metallicum* Sharp

Pronotum with transverse wrinkles greatly reduced, scarcely visible to the naked eye; pronotum without or with only one or two punctures at the base; head with less than 20 punctures on the vertex; microsculpture not visible in the punctures of the elytra at mag. × 40 (Fig. 110); (Mount Arthur) .. .. 44. *angustulum* Sharp

8 (5) Pronotum without punctures at the inner side of, or between, the basal depressions 9

Pronotum punctured, at least with 2 or more punctures on the inner side of the basal depressions 11

9 (8)	Elytral striae marked by very small, elongate, obsolescent punctures connected by almost continuous faint, impressed lines (Fig. 16); elytral intervals regular and almost flat; elytra shining	45. *strictum* sp.n.
	Elytral striae marked by very large coarse punctures which are clearly visible to the naked eye (Figs. 11, 19); elytra sometimes dull, with strong microsculpture	10
10 (9)	Length over 18 mm., usually 21 mm.; width of elytra over 5.0 mm.; elytral intervals 1–5 equally convex at the base (Figs. 19, 111)	46. *rugiceps* Sharp
	Length 17 mm. (holotype); width of elytra less than 5.0 mm.; elytral intervals 1, 3 and 5 broad and strongly convex at the base in contrast to intervals 2 and 4, which are narrow and depressed (Fig. 11)	47. *nitidum* Broun
11 (8)	Vertex of the head with less than 20 punctures (Fig. 18); elytral intervals quite flat, smooth and shining	48. *punctatum* Castelnau
	Vertex of the head with more than 40 punctures (Figs. 12, 13, 20); elytral intervals distinctly convex, especially at the base	12
12 (11)	Pronotum with a few punctures only near the posterior margin of the basal depression (Fig. 13)	13
	Pronotum punctured near both the anterior and the posterior margins (Figs. 12, 20) .. .	14
13 (12)	Length over 18 mm., usually 21 mm.; pronotum strongly sinuate before the posterior angles which are square (Figs. 19, 111)	46. *rugiceps* Sharp
	Length 17 mm. (holotype); pronotum very slightly sinuate before the posterior angles which are very obtuse and rounded (Fig. 13)	49. *longicolle* Broun
14 (12)	Pronotum with sides strongly sinuate before the base (Fig. 12); pronotum very coarsely wrinkled, the disc of the pronotum punctured on and between the wrinkles, surface of the elytra between the very coarse strial punctures with distinct isodiametric microsculpture	50. *persculptum* Broun
	Pronotum with sides only slightly sinuate before the base (Fig. 20); pronotum coarsely wrinkled, but the disc unpunctured on or between the wrinkles; the punctures limited to the neighbourhood of the anterior and posterior margins (i.e. within 1/6 of pronotum length of the margin); surface of the elytra between the striae shining without microsculpture	51. *florae* sp.n.
15 (1)	Surface of the elytra with uniform strong isodiametric microsculpture; striae strongly and uniformly impressed, without trace of punctures (Fig. 112), intervals distinctly convex; length usually over 20 mm.; legs uniform dark-brown in colour; sides of the abdominal sternites unpunctured	52. *striatum* Broun
	Surface of the elytra shining, without microsculpture; striae more strongly impressed at the base than on the disc; striae faintly punctured (Fig. 113), intervals 1–4 flat; length less than 20 mm.; legs with femora bright-red, tibiae and tarsi dark-brown to black; sides of the abdominal sternites punctured	53. *femorale* Broun

39. **Mecodema hudsoni*** Broun 1909, *Subant. Is. N. Zealand,* p. 83. pl. 3, f. 5; Seidl., *Arch. f. Naturg.,* 76, III, 1–2, 1910 (1912), p. 153 (*hudsonis*).

Fig. 41. *Length:* 28–31 mm. *Head:* vertex with a trace of very shallow transverse depression which is faintly and sparsely punctured. *Pronotum:* disc smooth with a distinct depression just in front of the middle of each side, each margin with 14–16 setiferous punctures. *Elytra:* striae moderately impressed, faintly but regularly punctured; intervals strongly convex; intervals 2, 4 and 6 only half as wide as intervals 3 and 5. Prosternum with one or two very faint punctures; proepisterna and mesepisterna faintly but uniformly punctured; the first 3 abdominal sternites very faintly punctured near the outer margins. *Microsculpture:* very faint or absent on head and pronotum, distinct in marginal channels and lateral depressions; distinct along the elytral striae, fainter along the middles of the intervals and very faint or absent along the middles of intervals 3 and 5.

THE SNARES: Holotype ♀ and paratype ♀.

40. **Mecodema alternans** Castelnau 1867, *Notes on Australian Coleoptera,* p. 75; *Trans. R. Soc. Victoria,* VIII, 1868, p. 161.

Figs. 40, 67, 108. *Length:* 21–25 mm. *Head:* frons and clypeus smooth, with only a few faint wrinkles; vertex with transverse depression very faint or absent, the punctures faint, more numerous at the sides than in the middle. *Pronotum:* disc with fine, faint, transverse wrinkles; each side with 8–13 setiferous punctures, the number increasing with total size. *Elytra:* striae moderately impressed, finely and regularly punctured; intervals slightly convex, intervals 2, 4 and 6 only half as wide as intervals 3 and 5. Prosternum with only a few faint punctures; proepisterna and mesepisterna distinctly punctured; 1st abdominal sternite with a small group of faint punctures near the outer margin. *Microsculpture:* present only in the lateral depression of the pronotum and in the elytral striae; absent from the head and the disc of the pronotum; on the elytra, the microsculpture extends from the striae to cover the intervals near the apex.

Location of the type unknown. Dr. Capra informs me that it is not in the Genoa Museum.

SOUTH ISLAND. *Otago:* Dunedin, 5 ex.

CHATHAM ISLANDS: 2 ex.; Pitt Island, 16–26.i.44, (*E. S. Gourlay*), 1 ex.

41. **Mecodema trailli*** Broun 1917, B. 1, v. p. 356.

*Mecodema philpotti** Broun 1923, B. 1, viii, p. 672 (new synonymy).

Fig. 109. *Length:* 25–30 mm. Differs from *alternans* in the larger size, more numerous punctures on the vertex and the microsculpture which extends from the elytral striae to cover the intervals even in the basal half; surface of the head and disc of elytra also with distinct isodiametric microsculpture. The aedeagus is identical with that in *M. alternans.*

SOUTH ISLAND. *Otago:* Stewart I., type of *trailli* and 1 ex.; Bluff, Southland, type of *philpotti* and 2 ex.

42. **Mecodema proximus*** sp.n.

Figs. 4, 71. *Length:* 17–18 mm. *Colour:* head, pronotum and elytra black, slightly aeneous; antennae, tibiae and tarsi dark-reddish-brown; femora and trochanters bright-red; procoxae and mesocoxae darker-red and the metacoxae black; ventral surface black. *Head:* frons smooth, unwrinkled; vertex very slightly depressed, with about 6 faint punctures on each side. *Pronotum:* ratio, 1·0/1·70/1·30/1·55; greatest width 4·5 mm.; sides only slightly sinuate in front of the posterior angles which are rounded; lateral margins narrow, each with about 6 setiferous punctures; disc smooth, unpunctured, with only very slight traces of transverse wrinkles; median line fine, distinctly impressed. *Elytra:* ovoid, shoulders rounded off; striae very faintly impressed and marked with rather faint elongate punctures (as in *M. stricta*); intervals flat or very slightly convex; interval 3, one and a-half times as wide as intervals 2 and 4. Prosternum at most with one or two punctures at the sides; proepisterna sparsely and rather faintly punctured; mesepisterna marked by about 30 coarse punctures set in transverse wrinkles; mesosternum, metasternum and abdomen unpunctured. Surface shining. *Microsculpture:* absent except in the punctures.

The characters which distinguish this from related species are given in the key.

Type in the collection of Mr. E. S. Gourlay.

SOUTH ISLAND. *Nelson:* Saddle Hill, near Nelson, 3,900 ft., 1.ii.38 (*A. Richardson*), holotype ♂ and paratype.

43. **Mecodema metallicum*** Sharp 1886, *Trans. R. Dublin Soc.*, (2), III, p. 359.

Figs. 17, 75. *Length:* 19–21 mm. *Colour:* aeneous-black, with antennae and femora bright reddish; ventral surface dark-brown or black with epipleurae and pro- and meso-coxae red. *Pronotum:* with fairly strong transverse wrinkles and short longitudinal wrinkles at the base; a few punctures at the base near lateral depressions. *Elytra:* striae marked by strong punctures which are rather widely and irregularly spaced, some connected by shallow longitudinal impressions in groups of two or three. *Ventral surface:* strongly punctured except near the mid-ventral line. One or more punctures in the lateral angles of the metacoxae. *Microsculpture:* visible only in punctures and other depressions of the surface.

SOUTH ISLAND. *Nelson:* Greymouth (*Helms*), holotype ♂ and allotype; Westport, 1 ex.

44. **Mecodema angustulum*** Broun 1914, B. 1, ii, p. 82.

Fig. 110. SOUTH ISLAND. *Nelson:* Mount Arthur (*G. V. Hudson*), ii.1911, 4,000 ft, holotype and 1 ex.

This species differs from *M. metallicum* in the reduced intensity of the sculpturation of head and pronotum.

45. **Mecodema strictum*** sp.n.

Figs. 16, 72. *Length:* 17 mm. *Colour:* dorsal surface aeneous black; ventral surface, legs and antennae black. *Head:* frons faintly wrinkled, unpunctured; vertex not depressed, with about 6 coarse punctures on each side. *Pronotum:* each lateral margin narrow with

about 6 setiferous punctures; disc with faint transverse wrinkles, unpunctured; median line distinctly impressed. *Elytra:* shoulders quite distinct; striae faintly impressed and marked by rather faint, regular, elongate punctures; intervals very slightly convex, more strongly convex at base; interval 3 nearly twice as wide as interval 4. *Ventral surface:* prosternum with a few faint punctures around the margins; proepisterna faintly and sparsely punctured; mesepisterna with a few coarse punctures and transverse wrinkles; metasternum with about five punctures near each lateral margin; the 3rd abdominal sternite with a few punctures on each side. Surface shining, without microsculpture, except for traces in the elytral punctures.

The characters which distinguish this from related species are given in the key.

SOUTH ISLAND. *Nelson:* Takaka Hill, 3,500 ft., 17.xii.33 (*E. S. Gourlay*), holotype ♂ in the collection of Mr. E. S. Gourlay.

46. **Mecodema rugiceps*** Sharp 1886, *Trans. R. Dublin Soc.*, (2), III, p. 359, pl. 12. f. 2; Broun, M., v, 1893, p. 976.

*Mecodema seriatum** Broun 1908, A., (8), II, p. 338 (new synonymy).

Figs. 19, 68, 111. *Length:* 21–22 mm. *Colour:* dark-reddish-brown to black. *Head:* depression of vertex strongly punctured; the whole upper surface of the head covered with deep irregular wrinkles; ventral surface of the head with strong transverse wrinkles. *Pronotum:* with dorsal surface covered by closely and regularly spaced transverse wrinkles, each side with 6–8 setiferous punctures. *Ventral surface:* punctured except for the greater part of the posterior coxae and the antecoxal piece. *Microsculpture* of the elytra strong, isodiametric usually faint or absent between punctures; faint or absent on head and pronotum except in the wrinkles and depression of vertex.

SOUTH ISLAND. *Canterbury:* Bealey (*Helms*), holotype, paratype, Mt. Moa. *Westland:* Otira Gorge; Arthur's Pass, 4,000 ft., 14.i.33 (*G. V. Hudson*). *Otago:* Lake Wakatipu; Hollyford; Lake Mackenzie; near Kinloch, Wakatipu; Harris Saddle, 5,000 ft.; Routeburn Riv., 19.i.36 (*C. E. Clarke*); Eglinton Valley, 14.xii.43 (*J. T. Salmon*), 1 ex.; Homer, xii.43 (*J. T. Salmon*), 1 ex.

This species varies a great deal in the degree of sculpturation (i.e. in the depth of punctures and wrinkles). The holotype has the pronotum unpunctured and covered with deep, uneven, but approximately parallel transverse wrinkles. Extreme forms have the pronotum only faintly wrinkled, or very deeply wrinkled and punctured. In the former case the microsculpture of the elytra is distinct only in the strial punctures, while in the latter the microsculpture is strong and continuous over the whole surface of the elytra. These extremes, however, are connected by intermediate forms and all have identical male genitalia, the aedeagus being characterised by a slight cleft at the apex.

47. **Mecodema nitidum*** Broun 1903, A., (7), XI, p. 452.

Figs. 11, 69. *Length:* 17 mm. *Colour:* aeneous black. *Head:* with frons strongly wrinkled, vertex with a number of faint punctures and a few strong ones. *Pronotum:* with strong transverse wrinkles and a number of cross wrinkles near the middle; short longitudinal wrinkles at apex and base; lateral margins with 7–8 setiferous punctures.

Elytra: striae very coarsely and irregularly punctured, sometimes partly united in groups of two or three by longitudinal impression; intervals distinctly convex. *Microsculpture:* distinct only in the punctures and wrinkles; remainder of surface shining.

SOUTH ISLAND. *Nelson:* Westport, holotype ♀ and 1 ex.; Kaituna River, Collingwood (*E. S. Gourlay*), 5.xi.38, 1 ex.

48. **Mecodema punctatum*** Castelnau 1867, *Notes on Australian Coleoptera,* p. 78 (*Maoria*); *Trans. R. Soc. Victoria,* VIII, 1868, p. 164; Putzeys, *Ann. Mus. Civ. Genova,* 1873, p. 312; Broun, M. i, p. 11.

*Metaglymma aeneoniger** Broun 1886, M., III, p. 818 (new synonymy).
*Mecodema erraticum** Broun 1917, B. 1, v, p. 353 (new synonymy).

Figs. 18, 70. *Length:* 17–19 mm. *Colour:* aeneous-black. *Head:* mandibles without oblique rugosity; clypeus smooth, not grooved anteriorly; frons smooth between the eyes; transverse depression of the vertex weak, marked only at the sides with about 20 sparse but fairly deep punctures. *Pronotum:* ratio max. width/middle length = 1·10; regularly but not strongly rounded at the sides; sides slightly sinuate before the posterior angles which are obtuse and blunt; base slightly sinuate; median groove impressed to the base; anterior transverse impression strong; a few obsolete punctures between the lateral basal depression and the middle which is smooth; no punctures near the anterior margin; disc with faint transverse wrinkles. *Elytra:* striae faintly impressed, with elongate punctures; intervals not convex, the 3rd distinctly wider than the 2nd and the 5th wider than the 4th; the 7th interval with 4 to 5 punctures which are larger than those of the striae; the striae become deeper and more irregular towards the apex of the elytra. *Ventral surface:* prosternum marked with sparse obsolete punctures at the sides; episterna punctured, the punctures deeper below and fainter above; mesepisterna strongly punctured; abdominal sternites 1 and 2 with fairly deep but sparse punctures.

Type in the Genoa Museum.

SOUTH ISLAND. *Otago:* Dunedin (type); Mount Maungatua, 25 miles W. of Dunedin, 1 ex.; Mount Dick, Lake Wakatipu, 1 ex.; Clippings, nr. Kingston, Lake Wakatipu, 3 ex. *Nelson:* Takaka Hill (*E. S. Gourlay*), 1 ex.; Wangapeka Valley (*T. F. Cheeseman*), 1 ex.

49. **Mecodema longicolle*** Broun 1923, B. 1, viii, p. 672.

*Mecodema subaeneum** Broun, B. 1, viii, p. 674 (new synonymy).

Figs. 13, 74. *Length:* 17 mm. *Head:* strongly punctured on the vertex, but not in front of the middle of the eyes. *Pronotum:* with faint transverse wrinkles and two or three faint punctures on the inner side of the lateral depressions; each lateral margin with 8 setiferous punctures. *Elytra:* intervals slightly convex. *Ventral surface:* proepisterna closely but rather faintly punctured; mesepisterna strongly punctured and wrinkled; first two abdominal sternites with a few punctures at the sides; remainder of ventral surface unpunctured. *Microsculpture:* distinct, isodiametric in the punctures of the elytral striae, absent elsewhere.

NORTH ISLAND. *Taranaki:* Mount Egmont, holotype (*M. longicolle*); Dawson's Falls, 3,100 ft., 1 ex. *Wellington:* Martinborough, holotype of *M. subaeneum.*

50. **Mecodema persculptum** Broun 1915, B. 1, iv, p. 271.

Figs. 12, 73. *Length:* 20 5 mm. *Colour:* entirely black, slightly aeneous. *Head:* frons and clypeus transversely wrinkled, and sparsely and coarsely punctured, mainly in the wrinkles; slightly depressed, coarsely and closely punctured. *Pronotum:* with about 7 setiferous punctures on each side; base and apex marked by short longitudinal wrinkles, the remainder of the surface marked by close, deep wrinkles which are themselves closely punctured; some few punctures are set between the wrinkles. *Elytra:* striae not impressed, but marked by coarse, deep punctures which are usually as wide or wider than the intervals, which are therefore strongly convex and rather irregular. Intervals with faint transverse wrinkling. The punctures of striae 1, 2 and 3 on the disc are about half the size of those at the base of these striae and those of the outer striae. Prosternum coarsely punctured; proepisterna and mesepisterna coarsely and closely punctured and transversely wrinkled; mesosternum and metasternum coarsely punctured and wrinkled at the sides; antecoxal piece unpunctured; sides of all abdominal sternites coarsely punctured. *Microsculpture:* surface of head and pronotum without reticulate microsculpture; microsculpture of elytra distinct, isodiametric, in the punctures, obsolescent between punctures.

SOUTH ISLAND. *Nelson:* Upper Maitai, near Nelson, 20.xi.32 (*E. S. Gourlay*), holotype only.

51. **Mecodema florae*** sp.n.

Figs. 20, 76. *Length:* 20–21 mm. *Colour:* head, pronotum and elytra black, slightly aeneous; ventral surface, legs and antennae black. *Head:* with frons transversely wrinkled, not, or scarcely, punctured in front of the level of the middle of the eyes (the holotype has four very small punctures in the middle close to the margin of the clypeus); vertex coarsely and rather irregularly punctured, without a transverse depression. *Pronotum:* lateral margins very narrow, each with about 11 setiferous punctures; the disc traversed by strong wrinkles; apex and base with short longitudinal wrinkles; with numerous coarse punctures near the apical and basal margins. *Elytra:* ovoid, with shoulders obsolete; striae not impressed, but marked by large, deep punctures which are usually separated by about their own width, those of striae 5 and 6 slightly larger than the others. Pro- and mesepimera and the sides of the abdominal sternites punctured. Surface shining, without microsculpture.

NORTH ISLAND. *Wellington:* Ohakune (*T. R. Harris*), holotype in the British Museum.

SOUTH ISLAND. *Nelson:* Flora River, Mt. Arthur, 6.iii.35 (*E. S. Gourlay*), 2 paratypes; Flora River, 14.xi.25 (*W. Heighway*), paratype; Kaituna River, paratype; Paradise Peak, 4,500 ft., 6.xi.38 (*E. S. Gourlay*), paratype.

52. **Mecodema striatum*** Broun 1904, A., (7), XIV, p. 42.

Fig. 112. *Length:* 22 mm. *Head and pronotum:* shining black, microsculpture absent or faintly visible in the punctures and depressions; the surface marked by minute, regularly spaced pores (just visible at mag. × 40), frons smooth, a few punctures on the vertex.

Elytra: dark-brown; surface dull, due to the distinct microsculpture; striae strongly impressed, unpunctured; intervals strongly convex.

SOUTH ISLAND. *Otago:* Puysegur Point, Southland (*Sandager*), holotype and 2 ex.

53. **Mecodema femorale*** Broun 1921, B. 1, vii, p. 595.
*Mecodema veratrum** Broun 1921, B. 1, vii, p. 596 (new synonymy).

Fig. 113. *Length:* 17·5–19 mm. *Colour:* as in *M. metallicum*. *Head:* frons smooth, vertex with a few fine, faint punctures. *Pronotum:* with very faint transverse wrinkles, and some faint punctures near the base; several short, deep, longitudinal wrinkles near the anterior angles. *Elytra:* striae finely punctured and almost continuously impressed; striae 3–6 becoming noticeably deeper close to the base. Although there is no posterior puncture on the metacoxae, its position is occupied by a broad, shallow depression. This species is evidently closely related to *M. metallicum*.

SOUTH ISLAND. *Canterbury:* Hump Ridge, Hunter Mts., holotype ♀ of *M. femorale* and holotype ♀ of *veratrum*.

THE *infimate* GROUP OF SPECIES.

Group characters: very small, length less than 17 mm.; all elytral striae equally impressed and punctured; the vertex of the head punctured. Four species are known from the South Island.

KEY TO THE *infimate* GROUP OF SPECIES.

1	Pronotum elongate (Fig. 114); elytral striae continuously impressed, punctures of the striae obsolete; femora red, tibiae, tarsi and coxae dark-brown or black; length *ca.* 16 mm.; striae 5 and 6 united a short distance before the base	54. *infimate* Lewis
	Pronotum broader and more rounded at the sides; elytral striae not continuously impressed, punctures of the striae quite distinct; legs uniform dark-brown or black; striae 5 and 6 not united before the base ..	2
2	(1) Pronotum punctured near the anterior and posterior margins	3
	Pronotum unpunctured (Fig. 115) .. .	55. *minaw* sp.n.
3	(2) Pronotum shape as in Fig. 28, each side of the pronotum with 6 setiferous punctures; pro- and meso-coxae of lighter colour than the femora; length *ca.* 14 mm.; lateral angles of the metacoxae unpunctured; vertex of head with about 20 punctures (Fig. 116)	56. *morio* Castelnau
	Pronotum shape as in Fig. 27; each side of the pronotum with at most 4 setiferous punctures; pro- and meso-coxae of the same colour as the femora; length *ca.* 15 mm.; lateral angles of the metacoxae with one or two small punctures. Vertex of the head with over 40 punctures	57. *elongatum* Castelnau

54. **Mecodema infimate*** Lewis 1902, T., 34, p. 202.
*Mecodema rubripes** Broun 1917, B. 1, v, p. 353 (new synonymy).

Fig. 77, 114. *Length:* 14–16 mm. *Colour:* shining aeneous-black, femora and trochanters bright-red; tibiae dark-reddish-brown, black at their apices; tarsi black, coxae dark-reddish-brown to black. Head and pronotum smooth or with rather faint transverse wrinkles; pronotum faintly and sparsely punctured near the apex and base. *Elytra:* with the 3rd and 5th intervals more than twice as wide as intervals

2 and 4; striae uniformly and continuously impressed, the punctures very faint; striae 5 and 6 united near the base. *Microsculpture:* absent from head and pronotum, faint on elytra, mainly visible near the striae.

Both types are females.

SOUTH ISLAND. *Otago:* Stewart Is.; West Plains, Invercargill, holotype ♀ and 4 ex.

55. **Mecodema minax*** sp.n.

Fig. 115. *Length:* 16 mm. *Colour:* black, slightly aeneous; legs brownish-black; antennae black, becoming reddish-brown near the apex. *Head:* vertex broadly depressed, sparsely and irregularly punctured; frons smooth and shining. *Pronotum:* ratio 1·0/1·60/1·26/1·56; greatest width 3·7 mm.; sides sinuate before the basal angles which are rounded; median line strongly impressed; disc with very faint transverse wrinkles and about 4 short, strongly impressed striae near the middle of the posterior margin; disc unpunctured; each lateral margin with 6 setiferous punctures. *Elytra:* as in *M. punctifer;* striae marked by elongate punctures, the striae not impressed between the punctures; intervals distinctly convex; intervals 3 and 5 almost twice as wide as interval 2. *Ventral surface:* pro- and mes-episterna distinctly punctured; first abdominal segment with a few obsolete punctures; metacoxae with a setiferous puncture near the posterior outer angle in addition to a setiferous puncture near the middle of the anterior margin. *Microsculpture:* surface shining, without microsculpture except in the punctures of the elytral striae. *Aedeagus:* the apex of the aedeagus is hooked as in *M. proximum.*

Type in the Dominion Museum, Wellington.

SOUTH ISLAND. *Otago:* Mt. Table Top, near Milton, 24.xii.11, holotype ♂.

This species is closely related to *M. proximus,* from which it differs in being smaller, in the different shape of the pronotum, and by having the legs black instead of reddish.

56. **Mecodema morio** Castelnau 1867, *Notes on Australian Coleoptera,* p. 78, (*Maoria*); *Trans. R. Soc. Victoria,* 1868, VIII, p. 164; Putzeys, *Ann. Mus. Civ. Genova,* IV, 1873, p. 313, (*Metaglymma*); Broun, M., i, p. 11.

*Mecodema punctifer** Broun 1882, *N.Z. J. Sci.,* I, p. 215. (*Metaglymma*) (new synonymy).

Figs. 28, 78, 116. *Length:* 14 mm. *Colour:* aeneous black or dark-brown; legs and antennae dark-brown or black. *Head:* frons smooth; vertex with a few large and some small punctures, about 20 punctures in all. *Pronotum:* smooth, one or two punctures near the apical margin on either side. *Elytra:* with intervals 3 and 5 more than twice as wide as intervals 2 and 4, striae distinctly punctured but not uniformly impressed. Surface shining, without microsculpture.

Type in the Genoa Museum.

SOUTH ISLAND. *Otago:* Dunedin, holotype and paratype ♂.

57. **Mecodema elongatum** Castelnau 1867, *Notes on Australian Coleoptera,* p. 76; *Trans. R. Soc. Victoria,* VIII, 1868, p. 162; Putzeys, *Ann. Mus. Civ. Genova,* 1873, p. 313 (*Metaglymma*).

*Mecodema gratum** Broun 1917, B. 1, v, p. 354 (new synonymy).

Figs. 27, 79, 117. *Length:* 14–15 mm. *Colour:* head, pronotum and elytra aeneous-black; antennae, legs and ventral surface dark-brown to black. *Head:* frons smooth, with a few curved wrinkles on each side; vertex with a limtied number of punctures of two sizes, large and deep, and small and shallow. *Pronotum:* smooth, a few faint punctures near the anterior angles and at the base near the lateral depressions. *Elytra:* with striae rather faint and not quite continuous; strial punctures very faint, or absent in places; striae 5 and 6 deeply impressed near the base and not fused as in *M. infimate. Microsculpture:* surface shining. All abdominal sternites punctured at the sides. Lateral angles of the metacoxae with one or two small punctures.

Type in the Genoa Museum.

SOUTH ISLAND. *Otago:* Mt. Alfred, near Paradise, N. of L. Wakatipu, 2,000–3,000 ft. (*T. Hall,*) 7.ii.14, holotype and two paratypes.

THE *curvidens* GROUP OF SPECIES.

This group is characterised as follows: head, pronotum and ventral surface without punctures; pronotum with sides usually straight in the anterior half, strongly sinuate behind, strongly contracted at the base; eyes usually prominent, hemispherical; elytral striae more strongly impressed at the base and apex than on the middle; elytral intervals strongly convex at apex and base, less convex in the middle.

KEY TO THE *curvidens* GROUP OF SPECIES.

1	Vertex of the head with a narrow, sharply defined transverse groove (Fig. 118)	2
	Vertex of the head with a broad, shallow transverse depression	3
2 (1)	Pronotum more transverse, ratio greatest width/middle length = 1.20 (Fig. 118); transverse groove of the vertex straight or slightly curved out behind	58. *occiputale* Broun
	Pronotum less transverse, ratio greatest width/middle length = 1.05 (Fig. 119); transverse groove of the vertex angulate in the middle ..	59. *atrox* sp.n.
3 (1)	Length *ca.* 25 mm.; pronotum as Fig. 14; elytral striae strongly punctured, the punctures of striae 1–4 becoming fainter on the disc; stria 4 not reaching the base of the elytra; striae 5 and 6 fused considerably before the base .. .	60. *pluto* sp.n.
	Length *ca.* 20 mm.; elytral striae unpunctured or with faint traces of punctures near the middle, striae 4 ending as near the base as does stria 3; striae 5 and 6 not fused near the base (Fig. 120)	61. *curvidens* Broun

58. **Mecodema occiputale** Broun 1923, B. 1, viii, p. 670.
Mecodema exitosum Brookes 1926, T., LVI, p. 441 (new synonymy).

Figs. 80, 118. *Length:* 21–26 mm. *Pronotum:* ratio 1·0/1·70/1·35/1·50; width of base 3·6 mm., becoming more convex towards the lateral margins; intervals 3 and 5 are about twice as wide as 2 and 4 near the base; striae distinctly and regularly punctured. The elytra are widest behind the middle. Surface without reticulate microsculpture except in depressions.

NORTH ISLAND. *Auckland:* Tokaanu, Taupo County, holotype and paratype of *occiputale*; Okauia, Matamata County, 3 paratypes of *exitiosus;* Matamata, 19.iii.31 (*E. S. Gourlay*), 1 ex.; 13.vi.31 (*E. Fairburn*), 1 ex.; Mamaku, 13.vi.31 (*E. Fairburn*), 1 ex. *Wellington:* Kai-iwi Beach, 15.ix.17 (*A. C. O'Connor*), under logs, 1 ex.

59. **Mecodema atrox** sp.n.

Fig. 119. *Length:* 21 mm. *Colour:* black; antennae piceous. *Head:* clypeus and frons smooth, the latter with faint longitudinal wrinkles at the sides; eyes prominent, hemispherical; transverse groove of the vertex narrow, well defined, deeply impressed, angulate in the middle, the angle directed backwards. *Pronotum:* ratio 1·0/1·60/1·25/1·50; width of base 3·30 mm.; the sides straight in the anterior half, very strongly sinuate behind, the posterior angles slightly obtuse but sharp; the sides falling in a steep declivity to the very narrow lateral margins, each of which bears 5 or 6 setiferous punctures; median groove uniformly impressed, almost reaching apex and base; anterior transverse depression obsolete; disc with faint transverse grooves, unpunctured. *Elytra:* striae strongly impressed, uniformly and faintly punctured; the striae more strongly impressed at the base than on the disc; intervals of uniform width, almost flat on the disc, becoming more convex towards the sides, apex and base of the elytra; interval 7 and 4 setiferous punctures, the first on the interval and the posterior three on the 7th stria. *Ventral surface:* unpunctured. *Microsculpture:* faint, isodiametric, in the elytral striae; otherwise absent from the dorsal surface.

M. atrox resembles *M. occiputale* in having the transverse groove of the vertex narrow and deeply impressed, but it differs in the more elongate pronotum and by having the sides of the pronotum straight in the anterior half instead of being rounded.

North Island. *Auckland:* Tauranga, 20–26.iii.31 (*E. S. Gourlay*), holotype ♂ in the collection of Mr. E. S. Gourlay.

60. **Mecodema pluto** sp.n.

Fig. 14. *Length:* 24 mm. *Colour:* black, antennae, labrum and palpi dark-brown. *Head:* unpunctured, with a broad, deep, transverse depression of the vertex. *Pronotum:* ratio 1·0/1·65/1·35/1·70; width at base 3·4 mm., elongate and notably straight-sided (Fig. 14), the disc with regularly spaced wrinkles, faint in the middle, stronger towards the sides, each side with 4–5 setiferous punctures. *Elytra:* narrowed at the base, but with shoulders distinct; greatest width 6·7 mm. just behind the middle; intervals 1–4 almost flat, but with striae more strongly impressed and punctured near the base; intervals 5–8 strongly convex; intervals 3 and 5 about twice as wide as interval 4 in the middle; striae 1–4 distinctly impressed and punctured about the middle, strongly impressed and punctured towards base and apex; striae 5–8 strongly impressed and punctured throughout; stria 4 ends abruptly short of the base; striae 5 and 6 fuse near the base into a deep, wide channel which continues to the base. *Microsculpture:* reticulate, absent except in the depressions of the surface.

North Island. *Auckland:* Te Aroha Trig. Station (*H. Swale*), holotype in the British Museum.

61. **Mecodema curvidens** (Broun) 1915, B. 1, iv, p. 273 (*Metaglymma*).

Fig. 120. *Length:* 20 mm. *Pronotum:* ratio 1·0/1·65/1·25/1·60; width of base 3·0 mm. Like *M. pluto* in all respects except for the differences given in the key, the less strongly convex outer intervals, and the less prominent eyes.

North Island: Opotiki, xii.1912 (*F. R. Field*), holotype only.

THE *sulcatum* GROUP OF SPECIES.

Group characters: all elytral striae equally impressed; vertex of the head unpunctured; hind coxae with a setiferous puncture near the middle of the anterior margin; length less than 19 mm.; pronotum with posterior angles obtuse and rounded. Two species in the South Island and one which occurs on islands in the Cook Strait.

KEY TO THE *sulcatum* GROUP OF SPECIES.

1	Posterior coxae with a setiferous puncture near the posterior outer angle; all elytral striae faintly impressed and punctured; intervals at most very slightly convex; the raised lateral margins of the pronotum absent in the region of the basal depressions of the pronotum; the 3 to 5 setiferous punctures of the 7th interval distinct, visible to the naked eye (Fig. 121)	62. *oregoide* Broun
	Posterior coxae without setiferous punctures in the posterior half; all elytral striae strongly impressed and punctured, often with some of the punctures at base and sides of the elytra, steep-sided and pit-like so that they are usually filled with dried mud; the elytral intervals distinctly, often strongly, convex at the sides; the setiferous punctures of the 7th interval when present obscure and never visible to the naked eye (Figs. 122 and 123)	2
2	(1) Punctures of the elytral striae very strong, steep-sided and pit-like, usually containing dried mud; the strial punctures separated by less than their own length; all elytral intervals strongly convex; the basal depressions of the pronotum open to the lateral margins (Fig. 122); North and South Is.	63. *sulcatum* Sharp
	Punctures of the elytral striae quite strong, but not steep-sided and pit-like; the strial punctures do not retain dried mud and are separated by 1 to 3 times their own length; inner elytral intervals flat or slightly convex, outer intervals distinctly or strongly convex; basal depressions of the pronotum punctiform, not open to the lateral margins (Fig. 123); Islands in Cook Strait	64. *oblongum* Broun

62. **Mecodema oregoide*** (Broun) 1894, A., (6), XIV, p. 305 (*Metaglymma*).

Fig. 121. *Length:* 15–17 mm. *Colour:* black; antennae and femora reddish. *Head:* transverse depression of the vertex shallow, but distinct at the sides. *Pronotum:* the impressed line which represents the marginal channel ends at the most posterior of the 5 or 6 marginal setiferous punctures; median longitudinal impressed line distinct; lateral basal depressions very faint and circular, or absent. *Elytra:* striae all equally and rather faintly impressed and punctured; intervals flat or all equally and slightly convex; 7th interval with 3 to 5 large, deep, setiferous punctures which are visible to the naked eye. *Microsculpture:* absent except in the depressions of the surface. Surface shining.

SOUTH ISLAND. *Canterbury:* holotype, Akaroa, x.02 (*J. J. Walker*), 6 ex.; Christchurch Hilltop, 23.iii.39 (*R. Allan*), 2 ex.

63. **Mecodema sulcatum*** (Sharp) 1886, *Trans. R. Dublin Soc.*, (2), III, p. 361, t. 12, f. 4 (*Metaglymma*); Broun, M., v, p. 979.

*Metaglymma modicum** Broun 1894, A., (6), XIV, p. 305 (new synonymy); Hudson, N., p. 33.
*Metaglymma douilli** Broun 1905, A., (7), XV, p. 543 (new synonymy).
*Metaglymma ovicolle** Broun 1914, B. 1, iii, p. 147 (new synonymy).

Fig. 122. *Length:* 14–19 mm. *Colour:* black, legs dark-reddish-brown to piceous. *Head:* smooth, unwrinkled; depression of vertex faint. *Pronotum:* the raised lateral margin distinct to the posterior angle; sides slightly sinuate before the posterior angles; each side with 4–7 setiferous punctures; median line distinctly impressed. *Elytra:* striae strongly impressed and strongly punctured; the striae and punctures becoming stronger from striae 1–8; stria 9 not impressed, but distinctly punctured, especially of the outer striae near the base deep and pit-like; strial punctures separated by less than their own length; intervals convex. *Microsculpture:* absent, surface shining.

South Island. *Marlborough:* Picton (*Helms*), holotype and paratype; Seddon, 2 ex. *Otago:* Otaraia, holotype of *M. ovicolle*; Milford Sound, 30.i.46 (*R. Forster*), under log. *Canterbury:* holotype of *M. douilli.*

North Island. *Wellington:* holotype and paratype of *M. modicum* and 1 ex.; Mana I., 6 ex.; Red Rocks, 25.xii.41 (*J. T. Salmon*), 1 ex.

North Island examples tend to be smaller (14–17·5 mm.) than those from the South Island (17·0–19·0 mm.), but I can detect no constant difference between the two.

Mecodema oblongum* (Broun) 1882, *N. Zeal. J. Sci.*, 1, p. 216 (*Metaglymma*).

*Mecodema insulare** Broun 1921, B. 1, vii, p. 597 (new synonymy).

Fig. 123. *Length:* 16–18 mm. This species differs from *M. sulcatum* in the much weaker sculpturation of the elytral striae, the punctures being smaller and relatively widely separated; intervals 1–5 are less strongly convex, and the lateral basal depressions of the pronotum are smaller and almost punctiform.

Cook Strait: The Brothers Is., holotype and paratype of *M. oblongum;* Stephen's I., holotype of *M. insulare,* 1 ex., 3.xii.30 (*G. V. Hudson*).

North Island. *Hawke's Bay:* Ngaruroro River, 18.iv.42 (*M. Laird*), 1 ex. under poplar log.

Genus **Metaglymma** H. W. Bates

H. W. Bates, *Ent. Mo. Mag.*, IV, 1867, p. 78; Putzeys, *Ent. Zeit. Stettin,* XXIX, 1868, p. 316, p. 318; *Ann. Mus. Civ. Genova,* IV, 1873, p. 311; Broun, M. i, p. 10. *Maoria* Castelnau, *Notes on Australian Coleoptera,* 1867, p. 77; *Trans. R. Soc. Victoria,* VIII, 1868, p. 163.

Generic characters: Head: frons smooth, unpunctured, at most with faint transverse wrinkles; mandibles more strongly curved than in *Mecodema,* constricted at the base so that when closed the basal halves are largely concealed beneath the clypeus and labrum; maxillae as in *Mecodema;* labium rounded at the apex, paraglossae short, scarcely free at the apex; palpi with terminal segments widest near the middle, subcylindrical, truncate; penultimate segments of the labial palpi with two setae near the middle; mentum with a long, sharp, median tooth; antennae with segments 1 and 2 approximately

cylindrical, segments 3–11 globular and slightly flattened; antennae glabrous except for small lateral pilose patches on segments 7 to 11, the patches increasing in size towards the apex of the antennae. *Pronotum:* usually with a sharp declivity parallel to the lateral margins. *Elytra:* intervals convex; striae usually closely and regularly punctured; 7th interval with a variable number of setiferous punctures. *Ventral surface:* unpunctured; the penultimate abdominal sternite with a transverse row of 6–20 setiferous punctures; the 4th sternite usually with more than 2 setiferous punctures. *Legs:* the dorsal surface of the meso- and meta-tibiae strongly curved towards the apex; the pro- and meso-tibiae with long apical prolongations on the outer side.

Genotype: Metaglymma monilifer Bates.

KEY TO THE SPECIES OF *Metaglymma*.

1 Sides of the pronotum (Figs. 31, 32, 124) with a sharp declivity and wide, obvious marginal channels marked by transverse striae; elytra with the 6th interval near the base narrower than intervals 5 and 7, or absent, leaving an obvious depression between intervals 5 and 7 at the base 2

Sides of the pronotum (Figs. 15, 30) without a sharp marginal declivity; marginal channel obsolete; margin smooth, without striae; interval 6 usually widened at the base, thus preventing stria 6 from reaching the base; interval 6 never depressed or narrower than intervals 5 and 7 .. 65. *tibiale* Castelnau

2 (1) Sides of the pronotum sharply sinuate before the posterior angles which are approximately square (Fig. 32, 124); elytral striae 1–6 rather faintly punctured .. .. 66. *monilifer* Bates

Sides of the pronotum slightly sinuate before the posterior angles which are very obtuse and blunt (Fig. 31); elytral striae 1–6 with large, deep, pit-like punctures .. .. 67. *aberrans* Putzeys

65. **Metaglymma tibiale*** Castelnau 1867, *Notes on Australian Coleoptera*, p. 77, (*Maoria*); *Trans. R. Soc. Victoria*, VIII, 1868, p. 163; Putzeys, *Ent. Zeit Stettin*, xxix, 1868, p. 318; Broun, M., i, p. 11.

*Mecodema rufipes** Broun 1886, M., iv, p. 876 (new synonymy).
*Mecodema asperum** Broun 1893, M., v, p. 978 (new synonymy).
*Mecodema junctum** Broun 1893, M., v, p. 979 (new synonymy).
*Mecodema calcaratum** Broun 1903, A., (7), xi, p. 455 (new synonymy).

Figs. 15, 30, 81a. *Length:* 17–20 mm. Type in the Genoa Museum.

SOUTH ISLAND. *Otago:* Molyneux River, type of *M. tibiale;* Taieri, types of *M. rufipes, asperum, junctum* and *calcaratum;* Mt. Allan; Taieri Mouth, 6.iii.44 (*L. Gurt*), 1 ex.; Poolburn, 1 ex.; Wedderburn (*Lewis*), B ex.; Cromwell, 1 ex.

66. **Metaglymma monilifer*** Bates 1867, E.M.M., iv, p. 79; Putzeys, *Ent. Zeit. Stettin*, xxix, 1868, p. 319; *Ann. Mus. Civ. Genova*, IV, 1873, p. 312; Broun, M., i, p. 11.

*Metaglymma rugipenne** Broun 1893, M., VI, p. 1321 (new synonymy).
*Metaglymma minor** Broun 1905, A., (7), xv, p. 543 (new synonymy).

Fig. 32, 124. *Length:* 14–21 mm. Type in the R. Oberthür Collection at Rennes;

SOUTH ISLAND. *Canterbury:* Christchurch, type of *M. monilifer* and 6 other ex.; Ashburton, type of *M. rugipenne* and 1 ex.; N. Canterbury, type of *M. minor*; Methven, 3 ex.; Rakaia River, 1.xi.02 (*J. J. Walker*), 4 ex.; Lyttelton, xi.02 (*J. J. Walker*), 1 ex.; White Cliffs, 1 ex.; Springfield (*J. J. Walker*), 9 ex.

67. **Metaglymma aberrans** Putzeys 1868, *Ent. Zeit. Stettin,* xxix, p. 320.

*Metaglymma tersatum** Broun 1893, M., v, p. 980 (new synonymy).
*Metaglymma thoracicum** Broun 1893, M., vi, p. 1322 (new synonymy).
*Metaglymma rugiceps** Broun 1903, A., (7), XI, p. 454 (new synonymy).

Fig. 31. *Length:* 16–20 mm. Type in the Natural History Museum, Brussels.

SOUTH ISLAND. *Canterbury:* Lake Tekapo, holotype of *M. tersatum*; Albury, type of *M. rugiceps*; Governor's Bay, Bank's Peninsula, 3 ex. *Otago:* Moeraki, type of *M. thoracicum* and 3 ex.

GENUS **Brullea** Castelnau

Castelnau, *Notes on Australian Col.*, 1867, p. 80; *Trans. R. Soc. Vict.*, VIII, 1868, p. 166; Putzeys, *Ann. Mus. Civ. Genova,* IV, 1873, p. 319; Broun, M., i, 1880, p. 14.

Generic characters: Head: frons smooth, eyes prominent, hemispherical; one supraorbital puncture bearing 2 or 3 setae; ligula as in *Oregus* but emarginate at apex and with paraglossae short, not extending beyond apex; palpi with terminal segments subcylindrical and widest near middle; penultimate segments of labial palpi with 4 setae; mentum with bifid tooth, side pieces truncate; antennae very short, about 4 mm. in length, antennal segments 1–3 subcylindrical, 4–11 subglobose, slightly flattened; segments 1–5 glabrous, segments 6–11 with a small area of pubescence on each side, the sizes of these areas increasing towards the terminal segment; mandibles strongly curved, constricted near the base as in *Metaglymma,* so that when closed the basal halves are largely concealed beneath the clypeus and labrum; mandible without a seta in the scrobe; maxillae as in *Metaglymma;* median tooth of mentum bifid; apex of labium bifid and paraglossae free. *Pronotum:* rather flat, smooth, unpunctured, median line distinctly impressed; each lateral margin with 3–4 setiferous punctures, usually all in the anterior half; sides very strongly curved, and sinuate near the base. *Elytra:* rather depressed, broad; striae distinctly impressed and very indistinctly punctured; intervals moderately convex, intervals 3 and 5 wider than intervals 2, 4 and 6; interval 7 with about 8 setiferous punctures. *Microsculpture:* absent, but the surface usually dull, covered with minute scratches. Ventral surface smooth, entirely without punctures. Legs adapted for digging; coxae and femora greatly distended; tibiae triangular, greatly expanded at their apices, tarsi normal, of relatively small size; the apical spur of the anterior tibiae reaching to the junction between segments 4 and 5 of the tarsi; the longer of the two apical spurs of the middle tibiae reaching to the junction between 3rd and 4th segments of the tarsi, and the longer of the two spurs of the hind tarsi reaching to the junction between the 2nd and 3rd segments of the tarsi; the outer margin of the front and middle tibiae blade-like, and with an apical prolongation; hind tibiae strongly curved, convex outwards; anterior tibiae with a patch of setiferous punctures near

the apex, middle and hind tibiae with their outer faces entirely covered with setiferous punctures. Ventral surface smooth, shining, unpunctured; 3rd abdominal sternite with 2 setae on each side, the 4th sternite with about 6 on each side and the 5th (penultimate) sternite with 9–12 setae on each side; the last segment has about 6 setae on each side along the outer margin.

Genotype *Brullea antarctica* Castelnau

The genus contains one known species.

68. **Brullea antarctica** Castelnau 1867, *Notes on Australian Col.*, p. 80; *Trans. R. Soc. Vict.*, VIII, 1868, p. 166; Putzeys, *Ann. Mus. Civ. Genova*, IV, 1873, p. 319; Broun, M., i, 1880, p. 14; Hudson, N., p. 33.

Figs. 81, 125. *Length:* 21–25 mm. *Colour:* dorsal surface dark-brown or black; ventral surface, coxae and femora reddish-brown, tibiae and tarsi darker. *Pronotum:* transverse, and strongly constricted at the base, ratio 1·0/1·75/1·25/1·25. *Elytra:* strongly transverse, ratio length/width 1 55. Widest behind the middle and distinctly pointed at the apex.

Type in the Genoa Museum.

SOUTH ISLAND. *Westland:* Greymouth, xii.02 (*J. J. Walker*), 1 ex.; N. Karamea Beach, 2 ex. *Canterbury:* Springfield, x.02 (*J. J. Walker*), 1 ex. *Nelson:* Westport, x.01 (*J. J. Walker*), 6 ex. *Cook Strait:* D'Urville I., 22.iii.42 (*E. S. Gourlay*), 1 ex.

NORTH ISLAND. *Auckland:* N. Wairoa, 1 ex.

Hudson states that this species is found in sandy places, under logs or stones on the sea-beach about high-water mark, but it is rare. It is recorded by Hudson from the North Island (Paekakariki, Wanganui and Auckland).